BIOTECHNOLOGY
CURRICULUM FRAMEWORK

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All Nevadans ready for success in the 21st century

MISSION

To improve student achievement and educator effectiveness by ensuring opportunities, facilitating learning, and promoting excellence

Nevada Department
of Education

Nevada Ready!
INTRODUCTION

The Nevada CTE Curriculum Frameworks are a resource for Nevada’s public and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.

The intent of this document is to provide a resource to districts as they develop and implement CTE programs and curricula.

This program ensures the following thresholds are met:

- The CTE course and course sequence teaches the knowledge and skills required by industry through applied learning methodology and, where appropriate, work-based learning experiences that prepare students for careers in high-wage, high-skill and/or high-demand fields. Regional and state economic development priorities shall play an important role in determining program approval. Some courses also provide instruction focused on personal development.
- The CTE course and course sequence includes leadership and employability skills as an integral part of the curriculum.
- The CTE course and course sequence is part of a rigorous program of study and includes sufficient technical challenge to meet state and/or industry-standards.

The CTE program components include the following items:

- Program of Study
- State Skill Standards
- Employability Skills for Career Readiness Standards
- Career Technical Student Organizations (CTSOs)
- Curriculum Framework
- CTE Assessments:
  - Workplace Readiness Skills Assessment
  - End-of-Program Technical Assessment
- Certificate of Skill Attainment
- CTE Endorsement on a High School Diploma
- CTE College Credit
NEVADA DEPARTMENT OF EDUCATION
CURRICULUM FRAMEWORK FOR
BIOTECHNOLOGY

PROGRAM INFORMATION

Program Title: Biotechnology
State Skill Standards: Biotechnology
Standards Reference Code: BIOT
Career Cluster: Agriculture, Food and Natural Resources
Career Pathway: Animal & Plant Systems
Program Length: 3 Levels (L1, L2, L3c)
Program Assessments: Biotechnology
Workplace Readiness Skills
CTSO: FFA
Grade Level: 9-12
Industry Certifications: See Nevada’s Approved Certification Listing

PROGRAM PURPOSE

The purpose of this program is to prepare students for postsecondary education and employment in the Biotechnology industry.

The program includes the following state standards:

- Nevada CTE Skill Standards: Biotechnology
- Employability Skills for Career Readiness
- Nevada Academic Content Standards (alignment shown in the Nevada CTE Skill Standards):
  - Science (based on the Nevada Academic Content Standards for Science)
  - English Language Arts (based on the Common Core State Standards)
  - Mathematics (based on the Common Core State Standards)
- Common Career Technical Core (alignment shown in the Nevada CTE Skill Standards)

CAREER CLUSTERS

The National Career Clusters™ Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study (POS). In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career. As an organizing tool for curriculum design and instruction, Career Clusters™ provide the essential knowledge and skills for the 16 Career Clusters™ and their Career Pathways.*

PROGRAM OF STUDY

The program of study illustrates the sequence of academic and career and technical education coursework that is necessary for the student to successfully transition into postsecondary educational opportunities and employment in their chosen career path. (NAC 389.803)

PROGRAM STRUCTURE

The core course sequencing provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. Complete program sequences are essential for the successful delivery of all state standards in each program area.

**BIOTECHNOLOGY**

Core Course Sequence

<table>
<thead>
<tr>
<th>COURSE NAME</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Science I</td>
<td>L1</td>
</tr>
<tr>
<td>Agriculture Science II</td>
<td>L2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>L3C</td>
</tr>
</tbody>
</table>

The core course sequencing with the complementary courses provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. A program does not have to utilize all of the complementary courses in order for their students to complete their program of study. Complete program sequences are essential for the successful delivery of all state standards in each program area.

**BIOTECHNOLOGY**

Core Course Sequence with Complementary Courses

<table>
<thead>
<tr>
<th>COURSE NAME</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Science I</td>
<td>L1</td>
</tr>
<tr>
<td>Agriculture Science II</td>
<td>L2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>L3C</td>
</tr>
<tr>
<td>Biotechnology Advanced Studies*</td>
<td>AS</td>
</tr>
</tbody>
</table>

*Complementary Courses

STATE SKILL STANDARDS

The state skill standards are designed to clearly state what the student should know and be able to do upon completion of an advanced high school career and technical education (CTE) program. The standards are designed for the student to complete all standards through their completion of a program of study. The standards are designed to prepare the student for the end-of-program technical assessment directly aligned to the standards. (Paragraph (a) of Subsection 1 of NAC 389.800)
EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Employability skills, often referred to as “soft skills,” have for many years been a recognizable component of the standards and curriculum in career and technical education programs. The twenty-one standards are organized into three areas: (1) Personal Qualities and People Skills; (2) Professional Knowledge and Skills; and (3) Technology Knowledge and Skills. The standards are designed to ensure students graduate high school properly prepared with skills employers prioritize as the most important. Instruction on all twenty-one standards must be part of each course of the CTE program. (Paragraph (d) of Subsection 1 of NAC 389.800)

CURRICULUM FRAMEWORK

The Nevada CTE Curriculum Frameworks are organized utilizing the recommended course sequencing listed in the program of study and the CTE Course Catalog. The framework identifies the recommended content standards, performance standards, and performance indicators that should be taught in each course.

CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)

To further the development of leadership and technical skills, students must have opportunities to participate in one or more of the Career and Technical Student Organizations (CTSOs). CTSOs develop character, citizenship, and the technical, leadership and teamwork skills essential for the workforce and their further education. Their activities are considered a part of the instructional day when they are directly related to the competencies and objectives in the course. (Paragraph (a) of Subsection 3 of NAC 389.800)

WORKPLACE READINESS SKILLS ASSESSMENT

The Workplace Readiness Skills Assessment has been developed to align with the Nevada CTE Employability Skills for Career Readiness Standards. This assessment provides a measurement of student employability skills attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (d) of Subsection 1 of NAC 389.800)

END-OF-PROGRAM TECHNICAL ASSESSMENT

An end-of-program technical assessment has been developed to align with the Nevada CTE Skill Standards for this program. This assessment provides a measurement of student technical skill attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (e) of Subsection 1 of NAC 389.800)

CERTIFICATE OF SKILL ATTAINMENT

Each student who completes a course of study must be awarded a certificate which states that they have attained specific skills in the industry being studied and meets the following criteria: A student must maintain a 3.0 grade point average in their approved course of study, pass the Workplace Readiness Skills Assessment, and pass the end-of-program technical assessment. (Subsection 4 of NAC 389.800)
CTE ENDORSEMENT ON A HIGH SCHOOL DIPLOMA

A student qualifies for a CTE endorsement on their high school diploma after successfully completing the following criteria: 1) completion of a CTE course of study in a program area, 2) completion of academic requirements governing receipt of a standard diploma, and 3) meet all requirements for the issuance of the Certificate of Skill Attainment. (NAC 389.815)

CTE COLLEGE CREDIT

CTE College Credit is awarded to students based on articulation agreements established by each college for the CTE program, where the colleges will determine the credit value of a full high school CTE program based on course alignment. An articulation agreement will be established for each CTE program designating the number of articulated credits each college will award to students who complete the program.

CTE College Credit is awarded to students who: (1) complete the CTE course sequence with a grade-point average of 3.0 or higher; (2) pass the state end-of-program technical assessment for the program; and (3) pass the Workplace Readiness Assessment for employability skills.

Pre-existing articulation agreements will be recognized until new agreements are established according to current state policy and the criteria shown above.

Please refer to the local high school’s course catalog or contact the local high school counselor for more information. (Paragraph (b) of Subsection 3 of NAC 389.800)

ACADEMIC CREDIT FOR CTE COURSEWORK

Career and technical education courses meet the credit requirements for high school graduation (1 unit of arts and humanities or career and technical education). Some career and technical education courses meet academic credit for high school graduation. Please refer to the local high school’s course catalog or contact the local high school counselor for more information. (NAC 389.672)
CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS

COURSE INFORMATION:

COURSE TITLE: Agriculture Science I
ABBR. NAME: AG SCIENCE I
CREDITS: 1
LEVEL: L1
CIP CODE: 01.0000
PREREQUISITE: NONE
CTSO: FFA

COURSE DESCRIPTION:

This course is an introduction and survey course of the many career areas in agriculture. Topics include scientific investigations in agriculture, basic animal science, basic plant and soil science, ornamental horticulture, natural resource management, business management, leadership and communication through FFA, and career skills. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs.

TECHNICAL STANDARDS

CONTENT STANDARD 1.0 : EXAMINE THE ROLE OF AGRICULTURE IN SOCIETY
Perfomance Standard 1.1 : Recognize the Role of Agriculture in Society
Performance Indicators : 1.1.1-1.1.6
Performance Standard 1.2 : Understand the History of Production Agriculture
Performance Indicators : 1.2.1-1.2.3
Performance Standard 1.3 : Explore the World Food Supply
Performance Indicators : 1.3.1-1.3.2

CONTENT STANDARD 2.0 : DEVELOP LEADERSHIP AND COMMUNICATION SKILLS THROUGH PARTICIPATION IN FFA
Performance Standard 2.1 : Understand the History and Organization of FFA
Performance Indicators : 2.1.1-2.1.4
Performance Standard 2.2 : Understand the Opportunities in FFA
Performance Indicators : 2.2.1-2.2.3
Performance Standard 2.3 : Properly Use Skills in Parliamentary Procedure
Performance Indicators : 2.3.1-2.3.3
Performance Standard 2.4 : Understand the Importance of School and Community Awareness
Performance Indicators : 2.4.1-2.4.3

CONTENT STANDARD 3.0 : DEVELOP A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM
Performance Standard 3.1 : Understand The Benefits of an SAE Program
Performance Indicators : 3.1.1-3.1.5
Performance Standard 3.2 : Understand the Benefits of SAE Records
Performance Indicators : 3.2.1-3.2.4

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CONTENT STANDARD 4.0: EXPLORING SCIENTIFIC INVESTIGATION IN AGRICULTURE

Performance Standard 4.1: Design and Conduct Agricultural Research
   Performance Indicators: 4.1.1-4.1.2

Performance Standard 4.2: Report Agricultural Research
   Performance Indicators: 4.2.1-4.2.3

Performance Standard 4.3: Understand Scientific Measurement
   Performance Indicators: 4.3.1-4.3.3

Performance Standard 4.4: Use Laboratory Tools and Equipment
   Performance Indicators: 4.4.1-4.4.5

Performance Standard 4.5: Explore Careers in Agricultural Science
   Performance Indicators: 4.5.1-4.5.2

CONTENT STANDARD 5.0: DEVELOP AN UNDERSTANDING OF THE ANIMAL SCIENCE INDUSTRY

Performance Standard 5.1: Explore and Evaluate the Livestock Industry
   Performance Indicators: 5.1.1-5.1.4

Performance Standard 5.2: Understand Animal Cellular Biology
   Performance Indicators: 5.2.1-5.2.2

Performance Standard 5.7: Explore Careers in Animal Science
   Performance Indicators: 5.7.1-5.7.2

CONTENT STANDARD 6.0: UNDERSTANDING PLANT SCIENCE

Performance Standard 6.1: Identify Different Plant Classification Systems
   Performance Indicators: 6.1.1-6.1.3

Performance Standard 6.2: Identify Parts and Functions of Plant Cells
   Performance Indicators: 6.2.1-6.2.3

Performance Standard 6.3: Understand Plant Physiology
   Performance Indicators: 6.3.1-6.3.4

Performance Standard 6.4: Understand Flower Anatomy
   Performance Indicators: 6.4.1-6.4.4

Performance Standard 6.5: Understand Plant Propagation
   Performance Indicators: 6.5.1-6.5.3

Performance Standard 6.6: Understand Plant Nutrition and Health
   Performance Indicators: 6.6.1-6.6.5

Performance Standard 6.7: Explore Careers in Plant Science
   Performance Indicators: 6.7.1-6.7.2
EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

CONTENT STANDARD 1.0: DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

Performance Standard 1.1: Demonstrate Personal Qualities and People Skills
Performance Indicators: 1.1.1-1.1.7

Performance Standard 1.2: Demonstrate Professional Knowledge and Skills
Performance Indicators: 1.2.1-1.2.10

Performance Standard 1.3: Demonstrate Technology Knowledge and Skills
Performance Indicators: 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

English Language Arts:
  Reading Standards for Literacy in Science and Technical Subjects
  Writing Standards for Literacy in Science and Technical Subjects
  Speaking and Listening

Mathematics:
  Mathematical Practices

Science:
  Nature of Science
  Physical Science
  Life Science
  Earth and Space

* Refer to the Biotechnology Standards for alignment by performance indicator.
CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS

COURSE INFORMATION:

COURSE TITLE: Agriculture Science II
ABBR. NAME: AG SCIENCE II
CREDITS: 1
LEVEL: L2
CIP CODE: 01.0000
PREREQUISITE: Agriculture Science I
CTSO: FFA

COURSE DESCRIPTION:

This course is a continuation of Agriculture Science I. This course allows intermediate students to expand on skills and knowledge from Agriculture Science I. Areas of study include scientific investigations in agriculture, plant and soil sciences, agriculture sales and marketing, ornamental horticulture, animal sciences and natural resource management. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS:

CONTENT STANDARD 2.0: DEVELOP LEADERSHIP AND COMMUNICATION SKILLS THROUGH PARTICIPATION IN FFA
Performance Standard 2.2: Understand the Opportunities in FFA
Performance Indicators: 2.2.1-2.2.3
Performance Standard 2.3: Properly Use Skills in Parliamentary Procedure
Performance Indicators: 2.3.1-2.3.3
Performance Standard 2.4: Understand the Importance of School and Community Awareness
Performance Indicators: 2.4.1-2.4.3

CONTENT STANDARD 3.0: DEVELOP A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM
Performance Standard 3.1: Understand The Benefits of an SAE Program
Performance Indicators: 3.1.1-3.1.5
Performance Standard 3.2: Understand the Benefits of SAE Records
Performance Indicators: 3.2.1-3.2.4

CONTENT STANDARD 5.0: DEVELOP AN UNDERSTANDING OF THE ANIMAL SCIENCE INDUSTRY
Performance Standard 5.2: Understand Animal Cellular Biology
Performance Indicators: 5.2.3-5.2.7
Performance Standard 5.3: Explore Reproductive Physiology and Breeding Systems
Performance Indicators: 5.3.1-5.3.3
Performance Standard 5.4: Understand Animal Nutrition
Performance Indicators: 5.4.1-5.4.2

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Performance Standard 5.5: Understand Animal Health Management
Performance Indicators: 5.5.1-5.5.4
Performance Standard 5.6: Explore Animal Welfare Issues
Performance Indicators: 5.6.1-5.6.3

CONTENT STANDARD 7.0: EXPLORING SOIL SCIENCE
Performance Standard 7.1: Understand Soil Texture and Structure
Performance Indicators: 7.1.1-7.1.4
Performance Standard 7.2: Understand Soil Erosion
Performance Indicators: 7.2.1-7.2.2
Performance Standard 7.3: Explore Careers in Soil Science
Performance Indicators: 7.3.1-7.3.2

CONTENT STANDARD 8.0: EXPLORING ORNAMENTAL HORTICULTURE
Performance Standard 8.1: Understand the Basic Principles of Landscape Design
Performance Indicators: 8.1.1-8.1.4
Performance Standard 8.2: Understand the Basic Principles of Greenhouse Management
Performance Indicators: 8.2.1-8.2.5
Performance Standard 8.3: Understand the Basic Principles of Floriculture
Performance Indicators: 8.3.1-8.3.4
Performance Standard 8.4: Explore Careers in Ornamental Horticulture
Performance Indicators: 8.4.1-8.4.2

CONTENT STANDARD 9.0: EXPLAIN BASIC SALES AND MARKETING CONCEPTS FOR AGRICULTURE PRODUCTS
Performance Standard 9.1: Demonstrate an Understanding of Agricultural Marketing
Performance Indicators: 9.1.1-9.1.5
Performance Standard 9.2: Understand the Principles of Agricultural Sales
Performance Indicators: 9.2.1-9.2.6
Performance Standard 9.3: Explore Careers in Sales and Marketing
Performance Indicators: 9.3.1-9.3.2

CONTENT STANDARD 10.0: UNDERSTAND THE RELATIONSHIP BETWEEN AGRICULTURE AND NATURAL RESOURCE MANAGEMENT
Performance Standard 10.1: Explore Types of Natural Resources
Performance Indicators: 10.1.1-10.1.3
Performance Standard 10.2: Understand Human Demand on Natural Resources
Performance Indicators: 10.2.1-10.2.3
Performance Standard 10.3: Comprehend Natural Resource Conservation
Performance Indicators: 10.3.1-10.3.3
Performance Standard 10.4: Understand Ecology and Ecosystems
Performance Indicators: 10.4.1-10.4.4
Performance Standard 10.5: Explore Principles of Rangeland Management
Performance Indicators: 10.5.1-10.5.5
Performance Standard 10.6: Explore Careers in Natural Resource Management
Performance Indicators: 10.6.1-10.6.2
EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS
Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills
  Performance Indicators : 1.1.1-1.1.7
Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills
  Performance Indicators : 1.2.1-1.2.10
Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills
  Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

  English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
  Writing Standards for Literacy in Science and Technical Subjects
  Speaking and Listening

  Mathematics: Mathematical Practices

  Science: Nature of Science
  Physical Science
  Life Science
  Earth and Space

* Refer to the Biotechnology Standards for alignment by performance indicator.
CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS

COURSE INFORMATION:

COURSE TITLE: Biotechnology
ABBR. NAME: BIO TECH
CREDITS: 1
LEVEL: L3C
CIP CODE: 26.1201
PREREQUISITE: Agriculture Science II
PROGRAM ASSESSMENTS: BIOTECHNOLOGY
WORKPLACE READINESS SKILLS
CTSO: FFA

COURSE DESCRIPTION:
This course is a continuation of Agriculture Science II. This course allows advanced students to expand on skills and knowledge from Agriculture Science II. Areas of study will include a focus on animal and plant science applications, biochemistry, principles of genetic transfer and genetically modified organisms, bio- manufacturing, applications to the food industry, and trends in agricultural biotechnology research. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

TECHNICAL STANDARDS:

CONTENT STANDARD 1.0: RECOGNIZE THE HISTORICAL, SOCIAL, CULTURAL, AND POTENTIAL APPLICATIONS OF BIOTECHNOLOGY
Performance Standard 1.1: Distinguish Major Innovators, Historical Developments, and Potential Applications of Biotechnology
Performance Indicators: 1.1.1-1.1.5
Performance Standard 1.2: Determine Regulatory Issues and Identify Agencies Associated with Biotechnology
Performance Indicators: 1.2.1-1.2.3
Performance Standard 1.3: Analyze the Ethical, Legal, Social, and Cultural Issues Relating to Biotechnology
Performance Indicators: 1.3.1-1.3.4

CONTENT STANDARD 2.0: Demonstrate Laboratory Safety Procedures
Performance Standard 2.1: Safely Manage Biological Materials, Chemicals, and Wastes Used in the Laboratory
Performance Indicators: 2.1.1-2.1.3
Performance Standard 2.2: Demonstrate Understanding of Required Safety Practices and Procedures
Performance Indicators: 2.2.1-2.2.5

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CONTENT STANDARD 3.0: Demonstrate Laboratory Skills as Applied to Biotechnology
Performance Standard 3.1: Maintain and Interpret Biotechnology Laboratory Records
   Performance Indicators: 3.1.1-3.1.4
Performance Standard 3.2: Demonstrate Proper Laboratory Procedures
   Performance Indicators: 3.2.1-3.2.5

CONTENT STANDARD 4.0: Perform Microbiology, Molecular Biology, Enzymology, and Immunology Procedures
Performance Standard 4.1: Perform Microbiology Procedures
   Performance Indicators: 4.1.1-4.1.2
Performance Standard 4.2: Perform Molecular Biology Procedures
   Performance Indicators: 4.2.1-4.2.7
Performance Standard 4.3: Perform Enzymology and Immunology Procedures
   Performance Indicators: 4.3.1-4.3.3

CONTENT STANDARD 5.0: Demonstrate the Application of Biotechnology to Agriculture, Food, and Natural Resources (AFNR)
Performance Standard 5.1: Evaluate the application of Genetic Engineering to Improve Products of AFNR Systems
   Performance Indicators: 5.1.1-5.1.4
Performance Standard 5.2: Perform Biotechnology Processes Used in AFNR Systems
   Performance Indicators: 5.2.1-5.2.7
Performance Standard 5.3: Use Biotechnology to Monitor and Evaluate Procedures Performed in AFNR Systems
   Performance Indicators: 5.3.1-5.3.6

CONTENT STANDARD 6.0: Explore Careers in Agricultural Biotechnology
Performance Standard 6.1: Analyze Requirements for Careers in Agricultural Biotechnology
   Performance Indicators: 6.1.1-6.1.3

CONTENT STANDARD 7.0: Supervised Agricultural Experience (SAE)
Performance Standard 7.1: Understand the Benefits of an SAE Program
   Performance Indicators: 7.1.1-7.1.2

CONTENT STANDARD 8.0: Leadership Training in FFA
Performance Standard 8.1: Recognize the Traits of Effective Leaders and Participate in Leadership Training Through Involvement in FFA
   Performance Indicators: 8.1.1-8.1.4
Performance Standard 8.2: Understand the Importance of School and Community Awareness
   Performance Indicators: 8.2.1
**EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:**

**CONTENT STANDARD 1.0:** DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

- Performance Standard 1.1: Demonstrate Personal Qualities and People Skills
  - *Performance Indicators:* 1.1.1-1.1.7
- Performance Standard 1.2: Demonstrate Professional Knowledge and Skills
  - *Performance Indicators:* 1.2.1-1.2.10
- Performance Standard 1.3: Demonstrate Technology Knowledge and Skills
  - *Performance Indicators:* 1.3.1-1.3.4

**ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS:***

- **English Language Arts:** Reading Standards for Literacy in Science and Technical Subjects
  - Writing Standards for Literacy in Science and Technical Subjects
  - Speaking and Listening
- **Mathematics:** Mathematical Practices
- **Science:** Nature of Science
  - Physical Science
  - Life Science
  - Earth and Space

* Refer to the Biotechnology Standards for alignment by performance indicator.
COMPLEMENTARY COURSE(S):
RECOMMENDED STUDENT PERFORMANCE STANDARDS

Programs that utilize the complementary courses can include the following courses. The Advanced Studies course allows for additional study through investigation and in-depth research.

COURSE INFORMATION:

COURSE TITLE: Biotechnology Advanced Studies
ABBR. NAME: BIO TECH AS
CREDITS: 1
LEVEL: AS
CIP CODE: 26.1201
PREREQUISITE: Biotechnology
CTSO: FFA

COURSE DESCRIPTION:
This course is offered to students who have achieved all content standards in a program whose desire is to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students’ topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

TECHNICAL STANDARDS:
Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:
Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

SAMPLE TOPICS:
- Participate in individual/team competitions
- Investigate and utilize laboratory and management techniques and procedures
- Participation in an internship or job shadow opportunities
- Explore college and career opportunities