

## ASSESSMENT REPORT FOR

**Associate in Science, Biology Emphasis**

(Instructional Degree Program)

**2004-2005**

(Assessment Period Covered)

**Associate in Science**

**August 15, 2006**

(Degree Level)

(Date Submitted)

**Note:** Since fall semester of 2004, there have only been 9 students graduate with a A.S. degree in Biology. 7 of the 9 students continued in UVSC's B.S. degree biology, leaving only two students who transferred from UVSC to other institutions. Because of the paucity of students in this category, we have not gathered information unique and specific to these students.

### **Mission Linkage:**

**UVSC Mission Reference:** It is our goal to assist students to attain their goals, maximize their potential and talents both personally and professionally. It is also our goal to increase global awareness, understanding and responsibility regarding biological issues facing the world today.

**Department Mission Statement:** The Department of Biology is committed to providing courses, programs, and experiences that give all students the background and information necessary to apply the general principles of biology to themselves, to their role in society and to the biotic community, and understand the relationships that exist between mankind the biosphere. The faculty of the department are fully committed to provide the best educational opportunities possible in an atmosphere that encourages free exchange of ideas, and to provide opportunities for students and faculty to attain personal and professional goals.

### **Intended Educational (Student) Outcomes:**

1. Demonstrate a general knowledge of essential biological principles, concepts and terminology included in the sub-disciplines of inheritance, biodiversity, ecology, cell biology and organismal biology.
2. Demonstrate a fundamental knowledge of ecology emphasizing organisms' interdependency for survival and for quality of life in the biosphere.
3. Demonstrate a general knowledge of the process of evolution and the role of natural selection in biodiversity; and recognize evolution as the unifying theory within biology.
4. Demonstrate a general knowledge of genetics and principles of inheritance.
5. Students successfully completing a biology Associates in Science degree and applying to a four year institution will be accepted and will be successful in their academic pursuits in upper division biology course work.

Form B

Form C

subscores for the group and for each individual student. Group assessment indicators will also be reported.

**1.b. Use of Results to Improve Instructional Program:**

Group total scores and subscores will be used to assess curriculum and course content. These scores cannot be used as a comparison to a national norms since the MFAT examination is specifically written to the baccalaureate. These scores will also be used for value added comparisons to baccalaureate graduates taking the MFAT examination.

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**Form C**

~~2004-2005~~  
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### Intended Educational (Student) Outcome:

*NOTE: There should be one form C for each intended outcome listed on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.*

2. Demonstrate a fundamental knowledge of ecology emphasizing organisms' interdependency for survival and for quality of life in the biosphere.

### First Means of Assessment for Outcome Identified Above:

#### 2.a. Means of Program Assessment & Criteria for Success:

Students successfully completing the Associates in Science degree, biology emphasis, will take the MFAT biology test and score 30 percentile or better in the population biology, ecology and evolution section.

#### 2.a. Description of Data Collection & Assessment Results:

All, or not more than 50 students, successfully completing the requirements for an Associates in Science degree, biology emphasis, will take the MFAT examination. Results will be scored by ETS who will report group assessment indicators in the area of populations, communities, and ecosystems.

#### 2.a. Use of Results to Improve Instructional Program:

MFAT group assessment indicators in the area of populations, communities, and ecosystems will be used to assess the quality and quantity of the biology curriculum in ecology and ecology course content.

### Second Means of Assessment for Outcome Identified Above:

#### 2.b. Means of Program Assessment & Criteria for Success:

70% of students successfully completing the Associates in Science degree, biology emphasis, who are accepted into baccalaureate biology programs will achieve grades in upperdivision ecology classes equivalent to the science GPA earned at UVSC.

#### 2.b. Description of Data Collection & Assessment Results:

Data of students successfully completing the Associates in Science degree, biology emphasis, who have remained at UVSC to obtain a Bachelors of Science degree will be collected by the biology department. Data of students who have transferred to other four year institutions will be collected by the institutional research department. Average course specific GPA's will be compared to the science GPA's of the same group of students in the lower division classes taken at UVSC.

**2.b. Use of Results to Improve Instructional Program:**

Average course specific GPA's of upper divisions courses in ecology will be compared to average science GPA's in lower division courses taken at UVSC to assess the quality and quantity of the curriculum and course content in preparing students for upper division course work in the area of ecology.

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**Intended Educational (Student) Outcome:**

*N* (Instructional Degree Program)  
*O* (Assessment Period Covered)

(Degree Level)  
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*TE: There should be one form C for each intended outcome listed on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.*

- 3. Demonstrate a general knowledge of the process of evolution and the role of natural selection in biodiversity; and recognize evolution as the unifying theory within biology.**

### **First Means of Assessment for Outcome Identified Above:**

**3.a. Means of Program Assessment & Criteria for Success:**

Students successfully completing the Associates in Science degree, biology emphasis, will take the MFAT biology test and score 30 percentile or better in the population biology, ecology and evolution section.

**3.a. Description of Data Collection & Assessment Results:**

All, or not more than 50 students, successfully completing the requirements for an Associates in Science degree, biology emphasis, will take the MFAT examination. Results will be scored by ETS who will report group assessment indicators in the area of evolution.

**3.a. Use of Results to Improve Instructional Program:**

MFAT group assessment indicators in the area of evolution will be used to assess the quality and quantity of the biology curriculum in course content covering the topic of evolution.

### **Second Means of Assessment for Outcome Identified Above:**

**3.b. Means of Program Assessment & Criteria for Success:**

70% of students successfully completing the Associates in Science degree, biology emphasis, who are accepted into baccalaureate biology programs will achieve grades in upperdivision evolution classes equivalent to the science GPA earned in biology classes at UVSC.

**3.b. Description of Data Collection & Assessment Results:**

Data of students successfully completing the Associates in Science degree, biology emphasis, who have remained at UVSC to obtain a Bachelors of Science degree will be collected by the biology department. Data of students who have transferred to other four year institutions will be collected by the institutional research department. Average course specific GPA's will be compared to the average science GPA's of the same group of students in the lower division classes taken at UVSC.

**3.b. Use of Results to Improve Instructional Program:**

Average course specific GPA's of upper divisions courses in evolution will be compared to average science GPA's in lower division courses taken at UVSC to assess the quality and quantity of the curriculum and course content in preparing students for upper division course work in the area of evolution.

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### Intended Educational (Student) Outcome:

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- 4 Demonstrate a general knowledge of genetics and principles of inheritance.

### First Means of Assessment for Outcome Identified Above:

#### 4.a. Means of Program Assessment & Criteria for Success:

Students successfully completing the Associates in Science degree, biology emphasis, will take the MFAT biology test and score 30 percentile or better in the cellular and subcellular biology and 30 percentile in population biology.

#### 4.a. Description of Data Collection & Assessment Results:

All, or not more than 50 students, successfully completing the requirements for an Associates in Science degree, biology emphasis, will take the Results will be scored by ETS who will report group assessment indicators in the areas of Mendelian, population, and molecular genetics. MFAT examination.

#### 4.a. Use of Results to Improve Instructional Program:

MFAT group assessment indicators in the areas of Mendelian, population, and molecular genetics will be used to assess the quality and quantity of the biology curriculum and course content covering the topic of genetics.

## **Second Means of Assessment for Outcome Identified Above:**

### **4.b. Means of Program Assessment & Criteria for Success:**

70% of students successfully completing the Associates in Science degree, biology emphasis, who are accepted into baccalaureate biology programs will achieve grades in upperdivision genetics classes equivalent to the average science GPA earned in lower division classes taken at UVSC.

### **4.b. Description of Data Collection & Assessment Results:**

Data of students successfully completing the Associates in Science degree, biology emphasis, who have remained at UVSC to obtain a Bachelors of Science degree will be collected by the biology department. Data of students who have transferred to other four year institutions will be collected by the institutional research department. Average course specific GPA's will be compared to the average science GPA's of the same group of students achieved in the lower division classes taken at UVSC.

### **4.b. Use of Results to Improve Instructional Program:**

Average course specific GPA's of upper divisions courses in genetics will be compared to average science GPA's in lower division courses taken at UVSC to assess the quality and quantity of the curriculum and course content in preparing students for upper division course work in the area of genetics.

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### **Intended Educational (Student) Outcome:**

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- 5. Students successfully completing a biology Associates in Science degree and applying to a four year institution will be accepted and will be successful in their academic pursuits in upperdivision biology course work.

### **First Means of Assessment for Outcome Identified Above:**

**5.a. Means of Program Assessment & Criteria for Success:**

70% of student successfully completing the Associate in Science, Emphasis in Biology, degree who apply to enter other four year institutions or apply to enter UVSC's baccalaureate biology program will be accepted.

**5.a. Description of Data Collection & Assessment Results:**

The number of UVSC students who successfully matriculate with the UVSC Bachelors of Science in Biology or with any of the other four year institutions or universities will be tracked by the biology department through institutional

research.

**5.a. Use of Results to Improve Instructional Program:**

If there is less than a 70% acceptance rate, an assessment will be done of the criteria for nonacceptance. Corresponding weaknesses in the curriculum will be strengthened by the faculty to make students graduating with an Associates in Science degree from the Department of Biology better prepared and marketable to higher degree programs.

**Second Means of Assessment for Outcome Identified Above:**

**5.b. Means of Program Assessment & Criteria for Success:**

70% of students successfully completing the Associate in Science, Emphasis in Biology, degree who successfully matriculate into a baccalaureate program will, by the second semester, have a follow-on biology course GPA equivalent to the GPA earned in the Associate degree program at UVSC.

**5.b. Description of Data Collection & Assessment Results:**

Course grades and average biology GPA's of individual students who have successfully matriculated into a biology baccalaureate program will be tracked by the biology department through institutional research. These will be compared to the average science GPA's received in the Associate's degree program at UVSC.

**5.b. Use of Results to Improve Instructional Program:**

If second and subsequent semesters' GPA's are lower than the GPA's earned in the biology Associate's degree program at UVSC, individual upper division course prerequisites will be examined to discover areas of weakness in UVSC's biology curriculum. Curricula and individual course content will be modified to help strengthen students' knowledge base to make them more successful and competitive in upperdivision courses.