

**ASSESSMENT RECORD FOR  
DEPARTMENT  
OF**

**Biology**

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(Academic Department Name)

**2002 - 2004**

**February 28, 2005**

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(Assessment Period Covered)

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(Date Submitted)

Includes Assessment Reports for those Instructional Programs listed below:

Title of Instructional Degree Program

Degree Level

(Associate, Bachelors, Masters, etc.)

**Associate in Science, biology emphasis**

**Associate in Science**

**Bachelors of Science, Biology**

**Bachelors of Science**

**Bachelor of Science Degree in Biology Education**

**Bachelors of Science**

Submitted By: \_\_\_\_\_

(Departmental Chair or Faculty Assessment Representative)

# ASSESSMENT REPORT FOR

**Bachelors of Science, Biology**

(Instructional Degree Program)

**Bachelors of Science**

(Degree Level)

**2002 - 2004**

(Assessment Period Covered)

**February 28, 2005**

(Date Submitted)

## 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 mission of the Department of Biology is twofold: first, we are committed to educate students in the principle tenets of biology through structured inquiry and opportunities for individualized experiential learning. Second, we are committed to teaching ethical behavior in experimental design and practice to all of our students. The Department strives to provide the best educational opportunities possible for students to attain their academic goals and to facilitate faculty in scholarship in an atmosphere that encourages free exchange of ideas.

## Intended Educational (Student) Outcomes:

1. Demonstrate a knowledge of cellular and organismal biology.
2. Demonstrate a knowledge of the principles of ecology emphasizing organisms' interdependency for survival and for quality of life in the biosphere.
3. Recognize evolution as the unifying theory within biology and demonstrate a knowledge of the role of mutation and natural selection in the evolutionary process.
4. Demonstrate a knowledge of molecular genetics and principles of inheritance.
5. 70% of students successfully completing a Bachelors of Science in integrated studies, Biology Emphasis, degree and applying to graduate schools will be accepted, and 50% of those applying to medical or dental schools will be accepted.

# ASSESSMENT REPORT FOR

Report

**Bachelors of Science, Biology**

(Instructional Degree Program)

**2002 - 2004**

(Assessment Period Covered)

**Bachelors of Science**

(Degree Level)

**February 28, 2005**

(Date Submitted)

## 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.*

1. Demonstrate a knowledge of, cellular and organismal biology.

## First Means of Assessment for Outcome Identified Above:

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

70% of students successfully completing a Bachelors of Science in Biology will score 60 percentile or better in **organismal biology** section of the MFAT examination in the kingdom of emphasis.

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

All, or not more than 50 students, successfully completing the requirements for an Bachelors of Science degree in biology, took the MFAT examination. Results were scored by ETS who reported group assessment indicators in the area of **organismal** biology. MFAT scores of the Bachelors of Science students were compared to national norms and MFAT scores of freshman students for a value added comparison.

2002 Data: MFAT group assessment indicators in the area of organismal biology show a group scale mean score of **56.2**,  $SD \pm 16.6$  which exceeds the national institutional means scores of 52.6 but falls short of the department goals. Breaking the organismal section down into plant, animal, and cell; MFAT indicator show a mean percent of correct answer are as follows: plant-53.9, animal-59.9, and cell organization and structure- 66.9

2004 Data: MFAT assessment indicators in the area of organismal biology showed a group scale mean score of **60**,  $SD \pm 13$ . The group mean score of 60 corresponds to a 50 percentile average. Only 8/20 or 40% of the students who took the test in 2004 scored in the 60 percentile or better. (See appendix A)

### **1.a. Use of Results to Improve Instructional Program:**

Results 2002: Results exceed the national average but do not meet the goal set by the department, however it was concluded by the biology faculty that additional data should be accumulated to verify the results, since this is the only assessment tool that focused on this particular outcome.

Results 2004: The goal of 70% score 60 percentile has not yet been reached. The department taking action in two directions.

A. The faculty decided to change the goal from 70% will score 60 percentile or better, to a tiered goal system of: 30% of the students will score in the 75 percentile or better.

50 % of the students will score in the 60 percentile or better.

60% o f the students will score in the 50 percentile or better.

The top tier of this goal will represent a more accurate look at the program content while the lower tier may give a better perspective of the effectiveness of the teaching.

B. Faculty will form a curriculum committee fall 2005 constituted of faculty teaching courses containing components of organismal biology to evaluate the content of the courses and to update materials covering organismal biology. The desired goal is to produce better continuity through the curriculum and meet the departmental goal.

C. A third change is also occurring which may indirectly improve the results of the MFAT exam. The new banner computer system will enforce prerequisites for all courses on campus including all of the biology courses. This will prevent individuals from enrolling in the evolution capstone class unless they have followed the recommended sequence of core biology classes. For the last two examinations, several juniors and sophomores have taken the evolution class and the MFAT exam and possibly lowered the average.

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

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

70% student successfully completing a Bachelors of Science in biology and taking the GRE biology examination will score 50 percentile or better in the organismal biology section of the GRE examination.

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

Scores and subscore of UVSC students taking the GRE biology examination will be requested from ATS. UVSC students subscores in organismal biology will be averaged to assess their performance relative to the national norm.

2002 Data: As of fall 2002, only 3 or 4 students had taken the GRE and the data would not be definitive. The department decided to wait until enough UVSC biology graduates have taken the GRE to make the data meaningful.

2004 Data: Pending as of March 6, 2005.

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

GRE subcore averages in the area of organismal biology will be used to assess the quality and quantity of the biology curriculum and course content covering the topic of plant or animal organismal biology.

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

**1.c. Means of Program Assessment & Criteria for Success:**

70% student successfully completing a Bachelors of Science in biology and taking the MCAT examination will score in the 50 percentile or better on the biology portion.

**1.c. Description of Data Collection & Assessment Results:**

MCAT scores of UVSC students were obtained from AAMC and averaged to compare to the national norm and to compare to the average score of students who are accepted to medical schools. Subscores in biology will also be averaged and assessed similarly.

2003-4 Data: This data represent the combined data of medical school applicants who took the MCAT in either 2003 or 2004. The average total score for UVSC applicants who had completed a bachelors of science degree at UVSC was **25.6**. The national average was 26.63. The national average of applicants accepted into medical school in 2004 was 29.36.

57% of the UVSC students' score were higher that 50 percentile, 43% were below 50 percentile.

The average **biology score** of applicants who had complete a B.S. degree at UVSC was 9.9. The national average was 9.2 and the national average score of applicants matriculated was 10.2.

64% of UVSC students' score were higher than 50 percentile, 36% were below 50 percentile. (See appendix B)

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

Since the MCAT does not reveal subscores and the biology score includes organic chemistry, no definitive decisions were made other than to continue to use the MCAT biology score as a comparative barometer in conjunction with the GRE and MFAT score. barometer of

# ASSESSMENT REPORT

## FOR

**Bachelors of Science, Biology**

(Instructional Degree Program)

**2002 - 2004**

(Assessment Period Covered)

**Bachelors of Science**

(Degree Level)

**February 28, 2005**

(Date Submitted)

### 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 knowledge of the principles 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:

70% of students successfully completing a Bachelors of Science in Biology will score 60 percentile or better in the population biology section of the MFAT examination.

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

All, or not more than 50 students, successfully completing the requirements for an Bachelors of Science degree in biology, took the MFAT examination. Results were scored by ETS who reported group assessment indicators in the area of **population biology and ecology**.

2002 Data: MFAT group assessment indicators in the area of ecology and population biology show a group scale mean score of **60.3** SD  $\pm$  12.7. 8 of 23 or 35% of the students who took the test achieved a score that was 60 percentile or higher while 65% of the scores were less that the 60 percentile goal.

2004 Data: MFAT group assessment indicators in the area of ecology and population biology show a group scale mean score of **66.0** SD  $\pm$  9.0. 4 of 20 or 20% of the students who took the test achieved a score that was 60 percentile or higher while 80% of the scores were less that the 60 percentile goal. (See appendix A)

## **2.a. Use of results to improve the instructional Program**

Results 2002: Results exceed the national average but do not meet the goal set by the department, however it was concluded by the biology faculty that additional data should be accumulated to verify the results and when biology GRE results are available, MFAT score will be collaborated with the GRE score. It was adjudicated the current biology faculty did not have the expertise needed to improve the current curriculum, so it was determined that we should hire two new faculty members, a plant physiologist and an evolutionary biologist.

Results 2004: There was improvement in the overall score from **60 to 66**, but the percentile decreased and the goal of having 70% of the students taking the test achieve 60 percentile or greater was not achieved. The following decisions were made.

- A. The faculty decided to change the goal from 70% will score 60 percentile or better, to a tiered goal system of:
- 30% of the students will score in the 75 percentile or better.
  - 50 % of the students will score in the 60 percentile or better.
  - 60% of the students will score in the 50 percentile or better.

The top tier of this goal will the department a more accurate look at the program content while the lower tier may give a better perspective of the effectiveness of the teaching.

- B. Faculty will form a curriculum committee fall 2005 constituted of faculty teaching courses containing components of population biology to evaluate the content of the courses and to update materials covering population biology and ecology. The desired goal is to produce better continuity through the curriculum.
- C. A third change is also occurring which may indirectly improve the results of the MFAT exam. The new banner computer system will enforce prerequisites for all courses on campus including all of the biology courses. This will prevent individuals from enrolling in the evolution capstone class unless they have followed the recommended sequence of core biology classes. For the last two

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

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

70% student successfully completing a Bachelors of Science in biology and taking the GRE biology examination will score 50 percentile or better in the ecology and evolution section of the GRE examination.

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

Scores and subscore of UVSC students taking the GRE biology examination will be requested from ATS. UVSC students subscores in ecology and evolution will be averaged to assess their performance relative to the national norm.

2002 Data: As of fall 2002, only 3 or 4 students had taken the GRE and the data would not be definitive. The department decided to wait until enough UVSC biology graduates have taken the GRE to make the data meaningful.

2004 Data: Pending as of March 6 2005.

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

GRE subcore averages in the area of ecology and evolution will be used to assess the quality and quantity of the biology curriculum and course content covering the topic of ecology.

# ASSESSMENT REPORT

## FOR

**Bachelors of Science, Biology**

(Instructional Degree Program)

**2002 - 2004**

(Assessment Period Covered)

**Bachelors of Science**

(Degree Level)

**February 28, 2005**

(Date Submitted)

### 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.*

3. Recognize evolution as the unifying theory within biology and demonstrate a knowledge of the role of mutation and natural selection in the evolutionary process.

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

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

70% of students successfully completing a Bachelors of Science in Biology will score 60 percentile or better in the population biology section of the MFAT examination, which includes both **ecology and evolution**.

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

All, or not more than 50 students, successfully completing the requirements for an Bachelors of Science degree in biology, took the MFAT examination. Results were scored by ETS who reported group assessment indicators in the area of evolution.

2002 Data: MFAT group assessment indicators in the area of **ecology and evolution** show a group scale mean score of **60.3 SD ± 12.7**. 8 of 23 or 35% of the students who took the test achieved a score that was 60 percentile or higher while 65% of the scores were less than the 60 percentile goal.

2004 Data: MFAT group assessment indicators in the area of ecology and population biology show a group scale mean score of **66.0 SD ± 9.0**. 4 of 20 or 20% of the students who took the test achieved a score that was 60 percentile or higher while 80% of the scores were less than the 60 percentile goal. (See appendix A)

### **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 and course content covering the topic of evolution.

Results 2002: Results exceed the national average but do not meet the goal set by the department, however it was concluded by the biology faculty that additional data should be accumulated to verify the results and when biology GRE results are available, MFAT score will be collaborated with the GRE score. It was adjudicated that the current biology faculty did not have the expertise needed to improve the current curriculum, so it was determined that we should hire two new faculty members, a plant physiologist and an evolutionary biologist.

Results 2004: There was improvement in the overall score from **60 to 66**, but the percentile decreased from 52 percentile to 50 percentile and the goal of having 70% of the student taking the test achieve 60 percentile or greater was not achieved. The following decisions were made.

- A. The faculty decided to change the goal from 70% will score 60 percentile or better, to a tiered goal system of:
- 30% of the students will score in the 75 percentile or better.
  - 50 % of the students will score in the 60 percentile or better.
  - 60% of the students will score in the 50 percentile or better.

The top tier of this goal will the department a more accurate look at the program content while the lower tier may give a better perspective of the effectiveness of the teaching.

- B. Faculty will form a curriculum committee fall 2005 constituted of faculty teaching courses containing components of **ecology and evolution** to evaluate the content of the courses and to update materials covering ecology and evolution. The desired goal is to produce better continuity through the curriculum.
- C. A third change is also occurring which may indirectly improve the results of the MFAT exam. The new banner computer system will enforce prerequisites for all courses on campus including all of the biology courses. This will prevent individuals from enrolling in the evolution capstone class unless they have followed the recommended sequence of core biology classes. For the last two examinations, several juniors and sophomores have taken the evolution class and the MFAT exam and possibly lowered the average.

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

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

70% student successfully completing a Bachelors of Science in biology and taking the GRE biology examination will score 50 percentile or better in the ecology and evolution section of the GRE examination.

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

GRE subcore averages in the area of ecology and evolution will be used to assess the quality and quantity of the biology curriculum and course content covering the topic of evolution.

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

Scores and subscore of UVSC students taking the GRE biology examination will be requested from ATS. UVSC students subscores in ecology and evolution will be averaged to assess their performance relative to the national norm.

2002 Data: As of fall 2002, only 3 or 4 students had taken the GRE and the data would not be definitive. The department decided to wait until enough UVSC biology graduates have taken the GRE to make the data meaningful.

2004 Data: Pending as of March 6 2005.

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

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

70% student successfully completing a Bachelors of Science in biology and taking the MCAT examination will score in the 50 percentile or better.

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

MCAT scores of UVSC students were requested from AAMC and averaged to compare to the national norm and to compare to the average score of students who are accepted to medical schools. Subscores were also be averaged and assessed similarly. (See appendix B)

2003-4 Data: This data represent the combined data of medical school applicants who took the MCAT in either 2003 or 2004. The average total score for UVSC applicants who had completed a bachelors of science degree at UVSC was **25.6**. The national average was 26.63. The national average of applicants accepted in 2004 was 29.36.

57% of the UVSC students' score were higher that 50 percentile, 43% were below 50 percentile.

The average **biology score** of applicants who had complete a B.S. degree at UVSC was 9.9. The national average was 9.2 and the average score of applicants matriculated was 10.2.

64% of UVSC students' score were higher than 50 percentile, 36% were below 50 percentile.

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

Since the MCAT does not reveal subscores and the biology score includes organic chemistry, no definitive information is available. The faculty will to continue to use the MCAT biology score as a collaborative barometer to compare with the GRE and MFAT scores.

# ASSESSMENT REPORT

## FOR

**Bachelors of Science, Biology**

(Instructional Degree Program)

**2002 - 2004**

(Assessment Period Covered)

**Bachelors of Science**

(Degree Level)

**February 28, 2005**

(Date Submitted)

### 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.*

**4. Demonstrate a knowledge of molecular genetics and principles of inheritance.**

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

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

70% of students successfully completing a Bachelors of Science in Biology will score 60 percentile or better in the **molecular biology and genetics** section of the MFAT examination.

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

All, or not more than 50 students, successfully completing the requirements for an Bachelors of Science degree in biology, took the MFAT examination as part of the final exam biology 4500. Results were scored by ETS who reported group assessment indicators in the area of **molecular biology and genetics**. MFAT scores of the Bachelors of Science students will be compared to national norms.

2002 Data: MFAT group assessment indicators in the area of molecular biology and genetics show a group scale mean score of **51.6 SD  $\pm$  12.7**. 10 of 23 or 43% of the students who took the test achieved a score that was 60 percentile or higher while 57% of the scores were less that the 60 percentile goal.

2004 Data: MFAT group assessment indicators in the area of ecology and population biology show a group scale mean score of **57.0 SD  $\pm$  12.0**. 7 of 20 or 35% of the students who took the test achieved a score that was 60 percentile or higher while 65% of the scores were less that the 60 percentile goal. (See appendix A)

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

MFAT group assessment indicators in the area of **molecular biology and genetics** will be used to assess the quality and quantity of the biology curriculum and courses covering the topic of **molecular biology and genetics**.

Results 2002: Results do not meet the goal set by the department, however it was concluded by the biology faculty that additional data should be accumulated to verify the results, since this is the only assessment tool that focused on this particular outcome. Collaboration with GRE results will also be need to done.

Results 2004: There was improvement in the overall score from **51.6 to 57**, and the percentile increased from 48 percentile to 50 percentile. However, the goal of having 70% of the students taking the test achieve 60 percentile or greater was not achieved. The following decisions were made.

- A. The faculty decided to change the goal from 70% will score 60 percentile or better, to a tiered goal system of:
- 30% of the students will score in the 75 percentile or better.
  - 50 % of the students will score in the 60 percentile or better.
  - 60% o f the students will score in the 50 percentile or better.

The top tier of this goal will the department a more accurate look at the program content while the lower tier may give a better perspective of the effectiveness of the teaching.

- B. The department will form a curriculum committee in the fall of 2005 constituted of faculty teaching courses containing components of **molecular biology and genetics** to evaluate the content of the courses and to update materials covering molecular biology and genetics. The desired goal is to produce better continuity through the curriculum.
- C. A third change is also occurring which may indirectly improve the results of the MFAT exam. The new banner computer system will enforce prerequisites for all courses on campus including all of the biology courses. This will prevent individuals from enrolling in the evolution capstone class unless they have followed the recommended sequence of core biology classes. For the last two examinations, several juniors and sophomores have taken the evolution class and the MFAT exam and possibly lowered the average.

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

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

70% student successfully completing a Bachelors of Science in biology and taking the GRE biology examination will score 50 percentile or better in the molecular biology and genetic section of the GRE

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

Scores and subscore of UVSC students taking the GRE biology examination will be requested from ATS. UVSC students subscores in ecology and evolution will be averaged to assess their performance relative to the national norm.

2002 Data: As of fall 2002, only 3 or 4 students had taken the GRE and the data would not be definitive. The department decided to wait until enough UVSC biology graduates have taken the GRE to make the data meaningful.

2004 Data: Pending as of March 6 2005.

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

GRE subcore averages in the area of molecular biology and genetics will be used to assess the quality and quantity of the biology curriculum and course content covering the topic of molecular biology and genetics.

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

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

70% student successfully completing a Bachelors of Science in biology and taking the MCAT examination will score in the 50 percentile or better.

**4.c. Description of Data Collection & Assessment Results:**

MCAT scores of UVSC students were requested from ACT and averaged to compare to the national norm and to compare to the average score of students who are accepted to medical schools. Subscores were also be averaged and assessed similarly. (See appendix B)

2003-4 Data: This data represent the combined data of medical school applicants who took the MCAT in either 2003 or 2004. The average score for UVSC applicants who had completed a bachelors of science degree at UVSC was **25.6**. The national average was 26.63. The national average of applicants accepted in 2004 was 29.36.

57% of the UVSC students' total scores were higher than 50 percentile, 43% were below 50 percentile.

The average biology score of applicants who had complete a B.S. degree at UVSC was 9.9. The national average was 9.2 and the national average score of applicants matriculated was 10.2.

64% of UVSC students' biology scores were higher than 50 percentile, 36% were below 50 percentile.

**4.c. Use of Results to Improve Instructional Program:**

Since the MCAT does not reveal subscores and the biology score includes organic chemistry, no definitive information is available. The faculty will continue to use the MCAT biology score as a collaborative barometer to compare with the GRE and MFAT scores.

# ASSESSMENT REPORT

## FOR

**Bachelors of Science, Biology**

(Instructional Degree Program)

**2002 - 2004**

(Assessment Period Covered)

**Bachelors of Science**

(Degree Level)

**February 28, 2005**

(Date Submitted)

### 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.*

5. 70% of students successfully completing a Bachelors of Science degree in biology, and applying to graduate schools will be accepted, and 50% of those applying to medical or dental or schools will be accepted.

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

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

70% of students successfully completing a Bachelors of Science degree in biology who are applying to graduate schools will be accepted.

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

The number of Bachelors degree graduates who apply to graduate school and the number who are accepted have been tracked by the biology department's academic advisor. Percentages of acceptance will be compared with the goal. GRE scores of students who are accepted will be compared with the students who may be rejected to assess the department's role in preparation of the graduate for post graduate studies.

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

As of 12/03/05, the biology department has not yet collected the number of students who have matriculated into graduate schools. This data will be collected through institutional research fall 2005.

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

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

50% of UVSC students successful in pursuing a Bachelors of Science degree in biology and applying to medical schools will be accepted for matriculation.

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

The number of Bachelor degree candidates or graduates who apply to medical or osteopathic schools and the number who are accepted is tracked by the biology department's academic advisor. Percentages of acceptance were compared with the goal.

2002 Data: As of 12/03/02, only four students have applied from UVSC directly. Many transferred to BYU or U of U then applied. Of the **3** that applied for the 2001 and 2002 years of medical school, **3** were accepted; one to an osteopathic school and the others to medical school. One had to delayed matriculation due to a call to active duty in the military. Acceptance rate **100%**

2003 Data: Applying for the 2004 class **5** students receiving their bachelors degrees at UVSC applied to medical school and **2** were accepted. Or **40%**. Showing a decrease from previous data.

2004 Data: Applying for the 2005 class **8** students applied, **5** have been accepted and **3** are still pending. To date **63%** have been accepted. This data will be completed in July of 2005. ( See appendix B)

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

Results 2003: The number if medical school applicants is still low and we fell short of the goal of 50% matriculation with several students still pending. Due to the paucity of data and numbers applying. No decisions were made at this time other than to wait for the 2004 results.

Results 2004: As of March 15, 2005 we have met the goal of 50% matriculation. With 4 still pending. This data collection will continue until July 2005. Plans are being formulated to not only improve the biology curriculum as mentioned in the previous outcomes, to improve the MCAT biology scores, but to coordinate with other disciplines, such as chemistry, physics, english etc. to improve the performance of UVSC students on the other MCAT and DAT components and improve the competitiveness of our biology graduates applying the professional schools.

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

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

50% of UVSC students in successful in pursuing a Bachelors of Science degree in biology and applying to Dental schools will be accepted for matriculation.

### **5.c. Description of Data Collection & Assessment Results:**

The number of Bachelors degree candidates or graduates who apply to dental schools and the number who are accepted are tracked by the pre-dent club and the biology academic advisor. Percentages of acceptance were compared with the goal. ( See Appendix C)

Data 2002: In 2002, UVSC students applying to dental school numbered **6** and all were accepted to dental schools for the fall of 2003. The number of acceptances per applicant averaged 3. Acceptance rate = **100%**

Data 2003: In 2003, UVSC student applying to dental school numbered **6** again; and again all were accepted to dental schools for the fall of 2004. The number of acceptances per applicant averaged 5, and one was accepted to Harvard. Acceptance rate = **100%**.

Data 2004: In 2004 UVSC students applying to dental school numbered **19**. As of February 28th, **9** have been accepted and **10** are still pending. This data collection will be completed in July 2005.

### **5.c. Use of Results to Improve Instructional Program:**

Results 2002: These results exceeded our expectations in having a 100% acceptance rate in dental school. However the numbers are few and the faculty felt we should continue to follow this outcome parameter for several more years.

Results 2003 Again, a 100% acceptance rate into dental schools has exceeded our goals, but we have again concluded that the numbers are low and the biology faculty wish to continue to monitor this particular outcome.

Results 2004: Final outcomes are pending so these will be addressed fall 2005. Plans are being formulated to not only improve the biology curriculum as mentioned in the previous outcomes, to improve the DAT biology scores, but to coordinate with other disciplines, such as chemistry, physics, english etc. to improve the performance of UVSC students on the other MCAT and DAT components and improve the competitiveness of our biology graduates applying the professional schools.

## Bachelors of Science In Secondary Education

Currently the department of biology is preparing for the 2007 NCATE (National Council for Accreditation of Teacher Education) accreditation visit with a variety of outcome based performance assessments. The School of Education is purchasing a site license for some software, "Chalk and Wire," which will aggregate all education majors' performance data and make it available in any form and for any specific requested academic teaching majors. This database will begin the summer of 2005. Performance data that will be uploaded for biology education majors include:

- A. PRAXIS II Biology Exam -- required starting July 1, 2005
- B. Teacher Work Samples -- starting summer 2005 these include lesson plans and reflective assessments from actual teaching experiences
- C. Student Teaching Formative Assessments - An assessment form with scoring rubrics is being pilot tested this semester for secondary education majors and will be in place fall semester. The current form being used is for all student teachers, elementary and secondary education majors. These data will be completed by me for all science student teachers, by an education faculty member, and by the student teachers' cooperating teacher in the public schools.
- D. Student Teaching Summative Assessments - Prepared by a cooperative effort between Richard Toleman and the education faculty
- E. Biology Teaching Methods Class Portfolio. This will include videotapes of microteaching experiences with reflective assessments, lesson plans tied to the Utah Science Core Curriculum and the National Science Education Standards, bioethical issues presentations, and the use of technology in classrooms. The final exam results will also be a part of this portfolio. All of the portfolio data will be uploaded into the Chalk and Wire database beginning the summer of 2005.

Biology Secondary Education students are also required to take the evolution capstone class and will participate in the MFAT exam. Scores for these students will be separated out and independently examined relative to the national averages and in subsequent years.

We have been tracking the placement of Graduates of the Biology of Science in Secondary education.

**Graduates of Secondary Ed  
Biology Program**

<b>Semester Graduated</b>	<b>Total Number of Students</b>	<b>Hired</b>	<b>Pending</b>	<b>Percent placement</b>
Fall 2003	1	1	0	100%
Sprg 2004	5	5	0	100%
Fall 2004	6	1	5	Pending
Sprg 2005	5	1	4	Pending

Appendix A

**MFAT SCORES**

<b>Year</b>	<b>Cell Biology</b>	<b>Molecular Biology &amp; Genetics</b>	<b>Organismal Biology</b>	<b>Pop Biology- Evolution-Ecology</b>	<b>TOTAL Score (200)</b>
<b>2001 Freshman</b>	<b>40</b>	<b>39</b>	<b>35</b>	<b>40</b>	<b>135</b>
<b>2002 12Seniors 9Juniors 1Sophomore</b>	<b>60 + 15</b>	<b>52 + 13</b>	<b>56 + 17</b>	<b>60 + 13</b>	<b>157 + 15</b>
	<b>43 % ile</b>	<b>48 % ile</b>	<b>48 % ile</b>	<b>52 % ile</b>	<b>43 % ile</b>
<b>2004 12Seniors 6Juniors 1Sophomore</b>	<b>60 + 11</b>	<b>57 + 12</b>	<b>60 + 13</b>	<b>66 + 9</b>	<b>162 + 10</b>
	<b>35 % ile</b>	<b>50 % ile</b>	<b>50 % ile</b>	<b>50 % ile</b>	<b>40 % ile</b>

## Appendix B

### Entering Class 2004 & 2005

TEST DATE	SEX	MAJOR	VR SCORE	PS SCORE	WS SCORE	BS SCORE	TOTAL SCORE		
AUG, 2004	M	Biology	6	7	Q	8	21	didn't apply	
APR, 2004	M	Biology	6	6	L	5	17	didn't apply	
APR, 2004	M	Psych	8	10	O	10	28	accepted	
AUG, 2004	M	Biology	6	5	M	8	19	accepted	
APR, 2004	M	Biology	10	10	S	11	31	accepted	
APR, 2004	M	Biology	6	7	O	10	23	accepted	
AUG, 2004	M	Business	5	6	R	8	19	????	
APR, 2004	M	Biology	12	10	O	12	34	Accepted DO	
AUG, 2004	M	Biology	10	10	M	10	30	Pending	
APR, 2003	F	Psych	7	6	R	8	21	????	
APR, 2003	M	Biology	8	7	N	11	26	accepted	
APR, 2003	M	Biology	8	8	P	11	27	Pharmacy	
APR, 2003	M	Business	9	10	M	10	29	????	
AUG, 2003	M	Biology	11	11	M	12	34	accepted	
APR, 2004	F	Business	9	6	O	10	25	Accepted DO	
			<b>8.1</b>	<b>7.9</b>			<b>9.6</b>	<b>25.6</b>	Acceptances
			<b>35 - 51</b>	<b>42 - 58 %</b>			<b>60 - 74 %</b>	<b>53 - 59 % ile</b>	<b>53%</b>
			<b>% ile</b>	<b>ile</b>			<b>ile</b>		

## Appendix C

<b>Entering Class of 2005</b>									<b>Ave # of accepts</b>	<b>1.22</b>
Academic	Science	PAT	Math	Reading	Organic	Inorganic	Biology	Accepted	Pending	Percent
18.7	19.6	18.7	16.4	20.2	19	19.9	20.1	9	10	47%
17	17	17	16	19	17	17	17	National	Averages	
<b>Entering Class of 2004</b>									<b>Ave # of accepts</b>	<b>5</b>
Academic	Science	PAT	Math	Reading	Organic	Inorganic	Biology	Accepted	Pending	Percent
20		18.8						6	0	100%
<b>Entering Class of 2003</b>									<b>Ave # of accepts</b>	<b>3</b>
Academic	Science	PAT	Math	Reading	Organic	Inorganic	Biology	Accepted	Pending	Percent
19.7	20	21	18	19	20	21	20	6	0	100%