

# **ANNUAL PROGRAM ASSESSMENT PLAN AND REPORT**

## **Bachelor of Science in Human Biology**

Section I of this annual assessment plan and report for the Bachelor of Science (BS) program in Human Biology is organized to address each of the University Learning Outcomes in the order of planned implementation. Section II provides a brief overview of the course changes in the BS program, along with the current plan for addressing the University Learning Outcomes once the new courses are operational.

### **SECTION I: THE EIGHT UNIVERSITY LEARNING OUTCOMES**

#### **University Learning Outcome 1: Effective Communication**

Graduates will demonstrate effective verbal, non-verbal, and written communication skills in a wide variety of contexts, including collaborative activities.

A. How often addressed: annually.

B. Program criteria for ULO 1: Written Communication Rubric (See Appendix 1.)

C. Assessment method: Assessment of written assignments in Research 1-5.

All five of the research courses require a significant amount of written work, including ten class assignments and the final research project. In Research 1 and 2, students are asked to conduct and explain their data analyses and augment the text, where appropriate, with statistical graphics. In Research 3, 4, and 5, students are expected to develop structured and clear research appraisals and proposals (Research 3 and 4), and organized and supported research syntheses (Research 4 and 5). Students are advised in the syllabi that written assignments will be evaluated for legibility, comprehensibility, organization, and syntax. Criteria for grading written communication are attached to each course syllabus.

To evaluate each student's skill in written communication and, if appropriate, their improvement in this skill, all written work will be assessed using announced Criteria for Written Assignments (attached to each course syllabus; see Appendix 1). If mean ratings on four dimensions average at least 3 on the 4-point scale, each student's skill will be considered adequate. Each trimester grade will be based partially on ratings for written work. Remediation is the responsibility of the student.

D. Dr. Hulbert will analyze the results at the end of the winter 2005 trimester. Dr. Hulbert will then present the results and meet with Dr. Hines in summer 2005. The curriculum committee (Drs. Hines and Hulbert) will review and discuss the results to determine whether any course changes are warranted. An information summary and any recommended curriculum changes will be completed in fall 2005 for implementation in Winter 2006.

E. No data has been gathered prior to the current trimester.

**University Learning Outcome 8: Competence in one’s Discipline**

Graduates will demonstrate competence of appropriate depth and scope for one’s discipline.

A. How often addressed: annually.

B. Program criteria for ULO 8: demonstrated knowledge and understanding of human structure, function and disease.

C. Assessment Method

Dr. Tuchscherer and Dr. Wittich recommended two methods of assessing competence in the discipline of human biology, i.e., demonstrated knowledge and understanding of human structure, function and disease. These two methods require completion of

1. All courses in the Biology Concentration (see grid below) with a grade of C or higher; and
2. Part I, National Board Written Examination administered by National Board of Chiropractic Examiners with passing score as defined by the National Board.

The following grid has been proposed by Drs. Tuchscherer and Wittich to identify which courses address human structure, function and disease.

COURSE	STRUCTURE	FUNCTION	DISEASE
Biochemistry 1	X	X	X
Biochemistry 2	X	X	X
Clinical Nutrition 1		X	X
Embryology	X		X
Gross Anatomy 1	X	X	X
Gross Anatomy 2	X	X	X
Histology 1	X	X	X

Histology 2	X	X	X
Immunology & Clinical Microbiology	X	X	
Infectious Disease			X
Neuroscience 1	X	X	X
Neuroscience 2	X	X	X
Principles of Evidence-Based Health Care			
Pathology 1		X	X
Pathology 2		X	X
Physiology 1		X	X
Physiology 2		X	X
Public & Preventive Health			X

**D. Implementation Plan**

The above proposal will be presented for APAG review at the next scheduled meeting (April 13). Once the feedback and any APAG recommendations have been considered, the implementation plan will be developed. Anticipated initial implementation is during academic 2005-2006.

E. No data has been gathered to date.

**University Learning Outcome 7: Critical Thought and Knowledge Acquisition**

Graduates will acquire, appraise and apply scientific information. Graduates will contextually organize and synthesize relevant information to address an issue or problem.

A. How often addressed: annually.

B. Program criteria for ULO 7: to be established summer 2005

C. Assessment Method: to be established winter 2006

D. Implementation Plan

Implementation will occur in the five course research sequence. Dr. Hulbert will be responsible for developing the proposed criteria and assessment method in collaboration with Dr. Hines

**University Learning Outcome 4: Individuals, Communities and Cultures**

Graduates will demonstrate awareness and sensitivity to the cultural and health practices of individuals and communities. Graduates will be able to identify appropriate health related resources.

A. How often addressed: annually.

B. Program criteria for ULO 4: to be established fall 2005

C. Assessment Method: to be established winter 2006

D. Implementation Plan

Implementation will occur in the five course research sequence. Dr. Hulbert will be responsible for developing the proposed criteria and assessment method in collaboration with Dr. Hines

**University Learning Outcome 3: Ethical Reasoning**

Graduates will demonstrate a willingness to recognize the values of others while maintaining one's own integrity, and act ethically and professionally in all endeavors.

A. How often addressed: annually.

B. Program criteria for ULO 3: to be established winter 2005

C. Assessment Method: to be established summer 2005

D. Implementation Plan

Implementation will occur in the five course research sequence with assessment implemented effective Fall 2005. Dr. Hulbert is responsible for developing the proposed criteria and assessment method in collaboration with Dr. Hines.

**University Learning Outcome 5: Service to the Community**

Graduates will understand and value the benefits of service to the community.

A. How often addressed: annually.

B. Program criteria for ULO 5: to be established winter 2007 with development of the four new courses

C. Assessment Method: to be established winter 2007

D. Implementation Plan

The preliminary plan is that ULO5 will be incorporated in Philosophy of Science and Ethical Foundations, two of the four new courses. Dr. Hines will be responsible for developing the proposed criteria and assessment method in collaboration with Dr. Hines.

**University Learning Outcome 6: Influence of Mind, Body and Spirit on Health**

Graduates will recognize the inter-relationship of the mind, body and spirit and the influence of extrinsic factors on an individual's health.

A. How often addressed: annually.

B. Program criteria for ULO 6: to be established winter 2007 with development of the four new courses

C. Assessment Method: to be established winter 2007

D. Implementation Plan

The preliminary plan is that ULO6 will be incorporated in Research Methods, one of the four new courses. Dr. Hulbert will be responsible for developing the proposed criteria and assessment method in co with Dr. Hulbert.

### **University Learning Outcome 2: Self Directed and Lifelong Learning**

Graduates will be aware of the limits of one's personal knowledge and experience and have an intellectual interest in scholarly and creative endeavors. Graduates will actively set appropriate learning goals, pursue them, and apply the knowledge gained.

A. How often addressed: annually.

B. Program criteria for ULO 6: to be established winter 2007 with development of the four new courses

C. Assessment Method: to be established winter 2007

D. Implementation Plan

The preliminary plan is that ULO2 will be incorporated in Philosophy of Science and Research Methods, two of the four new courses. Dr. Hines will be responsible for developing the proposed criteria and assessment method in collaboration with Dr. Hulbert.

### **SECTION II: ASSESSMENT WITH THE NEW COURSES**

It was a matter of concern to the program administrator and the Academic Program Advisory Group that three of the University Learning Outcomes could not be feasibly addressed under the current curriculum. The current curriculum offers a five-course research sequence. While this research sequence provided some depth in the area of statistical procedures and research methods, it did not provide sufficient breadth. Recognizing our limited ability to meaningfully address important areas of general education in the five-course research sequence, a decision was made to replace the five-course research sequence (9 credits) with four courses (12 credits) that focus more centrally upon core aspects of general education. In this manner, the BS program will be able to more fully address the eight ULOs.

University Learning Outcome #8 will be addressed in the Biology Concentration. When the four new courses are implemented, the plan is to address Learning outcomes 1-7 as follows:

#### Ethical Foundations

3. Ethical Reasoning
4. Individuals, Community and Culture
5. Service to the Community

Communications

1. Effective Communication
4. Individuals, Communities and Cultures

Research Methods

2. Self Directed and Lifelong Learning
6. Influences of Body, Mind and Spirit on Health
7. Critical Thought and Knowledge Acquisition

Philosophy of Science

2. Self Directed and Lifelong Learning
3. Ethical Reasoning
4. Individuals, Community and Culture
5. Service to the Community
7. Critical Thought and Knowledge Acquisition

The first of the four new courses (Communications) will be offered in Summer 2007.

This concludes the report which was written by Dr. Max Hines in his capacity as administrator for the Bachelor of Science program.

Respectfully submitted April 4, 2005.

## Appendix 1: Criteria for Written Assignments

Effective written work needs to be **legible** (word-processing solves most of this problem), is **organized**, uses **standard grammar**, uses **effective sentences**, and, ultimately, is **clear**. Each writer needs to be aware of his or her **intended audience** and the message this audience needs to get, in as few words as possible. If you can, let your audience know that you are on their wavelength, and write to them. **Give your audience material that is as easy as possible for them to understand; do not antagonize these people.**

Beyond legibility, the criteria and ratings are:

4	3	2	1
<p style="text-align: center;"><b><u>Organization</u></b></p> <p>Material is easily understood by the intended audience. The points are in a logical sequence, and the narrative “flows” from one topic to the next. Transitions help guide the reader from one topic to the next.</p>	<p>Material has a general organization, but there the “flow” is sometimes hard to follow. Ideas are arranged logically, but some transitions are confusing.</p>	<p>Material is not organized so that a logical “flow” is seen. The reader, with effort, can detect the author’s reasoning and main points.</p>	<p>Material is not organized effectively. There is little detectable “flow” of ideas. It is difficult for readers to understand the author’s logic.</p>
<p style="text-align: center;"><b><u>Grammar</u></b></p> <p>Few, if any errors. Not distracting from the purpose of the writing. Effective spelling, punctuation.</p>	<p>Several errors. Detracts from the author’s message. Devalues the effect of the writing.</p>	<p>Frequent errors. Message is difficult to understand.</p>	<p>Narrative is filled with errors. Message is lost.</p>
<p style="text-align: center;"><b><u>Sentence Structure</u></b></p> <p>Sentences are written so the message is clear. Structure is varied to keep reader’s interest. Concise and understandable text.</p>	<p>Sentences are effective in getting the facts to the reader, without complex or varied structure.</p>	<p>Sentences are sometimes choppy. Some text is not in sentence form. Some phrases and incomplete thoughts.</p>	<p>Unclear sentences and phrases: incomplete thoughts.</p>
<p style="text-align: center;"><b><u>Clarity</u></b></p> <p>Material is easy to understand by the intended audience.</p>	<p>Most of the material is understood by the intended audience. Some points unclear.</p>	<p>Reader has to work to understand some points or follow the author’s logic.</p>	<p>Material is misunderstood or not understood at all by the intended audience.</p>

**Our bookstore has copies of Day RA. Scientific English: A Guide for Scientists and Other Professionals (2<sup>nd</sup> ed). Phoenix, AZ: Oryx Press, 1995.**

## Appendix 2

### University Learning Outcome Timeline Bachelor of Science Program in Human Biology

February 24, 2005

Assessment Element	Biology BS
<b>Establish measurements for 1<sup>st</sup> University learning outcome: "Effective Communication"</b>	Fall 2004
Implement measurement for 1 <sup>st</sup> outcome	Winter 2005
Analyze results of measurement	Summer 2005
Provide feedback to curriculum committee	Fall 2005
Curriculum committee processes information and recommends changes in courses in collaboration with faculty for 1 <sup>st</sup> outcome	Fall 2005
Course changes are implemented for 1 <sup>st</sup> outcome	Winter 2006
Course changes are reported to stake holders for 1 <sup>st</sup> outcome	Winter 2006
<b>Selection of 8<sup>th</sup> University learning outcome: Competence in One's Discipline</b>	Summer 2005
Definition of learning outcome #8 criteria guidelines	Summer 2005
Establish criteria for outcome 8	Summer 2005
Collect curriculum mapping information on learning outcome #8	Fall 2005
Establish measurement tools for learning outcome #8	Fall 2005
Implement measurement for 2 <sup>nd</sup> outcome	Winter 2006
Analyze results of measurement	Summer 2006
Provide feedback to curriculum committee	Summer 2006
Incorporate recommendations for curriculum changes to specific classes	Fall 2006
<b>Selection of University learning outcome: Outcome 7 Critical Thought and Knowledge Acquisition</b>	
Establish criteria for Learning outcome #7	Summer 2005
Collect curriculum mapping information on learning outcome #7	Fall 2005
Establish measurement tools for learning outcome #7	Summer 2005
Implement measurement for learning outcome #7	Fall 2005
Analyze results of measurement	Winter 2006
Provide feedback to curriculum committee	Winter 2006
Incorporate recommendations for curriculum changes to specific classes	Summer 2006
Analyze results of measurement	Fall 2006
Provide feedback to curriculum committee	Winter 2006
Incorporate recommendations for curriculum changes to specific classes	Summer 2006
<b>Selection of University Learning Outcome 4: Understanding of Individuals, Communities and Cultures</b>	

Establish criteria for Learning outcome #4	Fall 2005
Collect curriculum mapping information on learning outcome #4	Fall 2005
Establish measurement tools for learning outcome #4	Winter 2006
Implement measurement for learning outcome #4	Winter 2006
Analyze results of measurement	Summer 2006
Provide feedback to curriculum committee	Summer 2006
Incorporate recommendations for curriculum changes to specific classes	Fall 2006
<b>Selection of University learning outcome 3: Ethics and Moral Reasoning</b>	
Establish criteria for Learning outcome #3	Winter 2005
Collect curriculum mapping information on learning outcome #3	Winter 2005
Establish measurement tools for learning outcome #3	Winter 2005
Implement measurement for learning outcome #3	Winter 2005
Analyze results of measurement	Summer 2005
Provide feedback to curriculum committee	Summer 2005
Incorporate recommendations for curriculum changes to specific classes	Fall 2005
<b>Selection of University learning outcome 5 :Service to the community</b>	
Establish criteria for Learning outcome #5	
Collect curriculum mapping information on learning outcome #5	
Establish measurement tools for learning outcome #5	
Implement measurement for learning outcome #5	
Analyze results of measurement	
Provide feedback to curriculum committee	
Incorporate recommendations for curriculum changes to specific classes	
<b>Selection of University learning outcome 6: Influences of Mind, Body and Spirit on Health</b>	
Establish criteria for Learning outcome #6	
Collect curriculum mapping information on learning outcome #6	
Establish measurement tools for learning outcome #6	
Implement measurement for learning outcome#6	
Analyze results of measurement	
Provide feedback to curriculum committee	
Incorporate recommendations for curriculum changes to specific classes	
<b>Selection of University learning outcome 2: Self-directed and Lifelong learning</b>	
Establish criteria for Learning outcome #2	

Collect curriculum mapping information on learning outcome #2	
Establish measurement tools for learning outcome #2	
Implement measurement for learning outcome 2	
Analyze results of measurement	
Provide feedback to curriculum committee	
Incorporate recommendations for curriculum changes to specific classes	