

Final

BIOL 4360K - Comparative Vertebrate A &

P 2016-2017

Course Description

Broad comparative analysis of vertebrate morphology by considering anatomical structure and function and the integration of these structures in the individual organism, as well as the functional process of vertebrate organs and organ systems, and their physiological integration. Consideration will be given to the relationship between structure and functional demands of vertebrates to particular environments as well as the details of each vertebrate organ system, emphasizing the structure-function relationship of the organs/organ systems, and the range of structural and evolutionary modifications of organ systems seen in different vertebrate classes.

Program Outcomes/Goals

PO1

Selective pressures

To demonstrate an understanding of how selective pressures can lead to adaptive genetic changes in organisms through time.

Student Learning Outcomes

SLO1

Describe relationship between vertebrate anatomy & behavior

Describe the relationship between a vertebrate's anatomy and its behavior, activity level, range of movement, and habitat (to name a few).

Supported Initiatives

Standards (2)

SACSCOC 2012 Principles of Accreditation*: 3.3.1.1 educational programs, to include student learning outcomes

SACSCOC 2012 Principles of Accreditation*: 4.1 The institution evaluates success with respect to student achievement consistent with its mission. Criteria may include: enrollment data; retention, graduation, course completion, and job placement rates; state licensing

examinations; student portfolios; or other means of demonstrating achievement of goals.
(Student achievement)

General Education (1)

10: Science, Math, and Technology - Students will demonstrate the ability to evaluate observations, inferences, or relationships in works under investigation.

Institutional Priorities (0)

Strategic Initiatives (3)

Mission/Core Commitments: 1 Dalton State College provides a diverse student population with opportunities to acquire the knowledge and skills necessary to attain affordable baccalaureate degrees, associate degrees, and certificates and to reach their personal and professional goals.

Strategic Plan, 2016-2019 Goals: 2 Academic Excellence: Dalton State College will develop and maintain a culture of academic and teaching excellence among faculty and staff while creating optimal opportunities for student academic excellence.

University System of Georgia Strategic Plan Goals: 1 Commitment to Academic Excellence and Degree Completion: We will maximize our resources and strengthen educational partnerships to ensure that Georgians have a seamless educational system that is both affordable and of the highest quality.

Action Plans for Improvement

Action Plans for Improvement Description

I am unsure what I can do to improve this goal short of telling the students which essay question will be on the third lecture exam! I feel that I covered this material quite well in class and don't think that more time spent on it would be necessary because it would be at the cost of other material. Additionally, I tell my students through out the semester that the essays that are on the lecture exams also will be on the final. This is a way to help me students learn from past mistakes and improve their writing and understanding. If the students choose not to study, I can't make them study.

Due Date

Dec 15 2017

Status

Planned

Measures

M1

Final Exam Essay

There is an essay question on the final asking the students to demonstrate an understanding of the anatomy and physiology of the avian respiratory system.

Methodology

Students will write essays on the final exam to demonstrate understanding, and students ought to be able to write essays for an upper level biology elective.

Source of Evidence: Writing exam

Target

70% success

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
70% of the students in the course will earn 70% of the points for the question on bird respiratory systems.	60% of the students earned at least 70% of the points for the question on bird respiratory systems.	This is a new goal that I developed this year and cannot speak to its improvement yet. I may change the goal for next time that I teach the course because so few students opted to answer this question, but that is unpredictable.	Academic: Target not met but acceptable	Not Met

Analysis of Finding and Evaluation Results

Five out of 12 students elected to answer this essay question on the final. Three students earned at least 70% of the points. The other two students both earned 40% of the points available for the essay. The average score for this question was 76%. I am unsure why the two students failed to earn the points for this essay. We spent several slides discussing avian respiratory systems because they are so unique among vertebrates. In lecture I showed them diagrams, and an animation from a colleague's website that demonstrates the one-way flow of air through bird respiratory systems, and then I showed them two videos from the internet that demonstrates the function of the bird respiratory systems. Then I linked the animation on GAView for the students to watch again while studying. Even more frustrating is the fact that this particular essay question is exactly the same one that I had on their third lecture exam which I gave them the week before. I estimate that they should have been able to answer this question quite easily on the final. The students who achieved the goal likely studied and learned from their previous mistakes.

SLO2

Understand vertebrate diversity

Identify & understand the structures and functions that make up the vertebrate body.

Supported Initiatives

Standards (2)

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General Education (1)

10: Science, Math, and Technology - Students will demonstrate the ability to evaluate observations, inferences, or relationships in works under investigation.

Institutional Priorities (0)

Strategic Initiatives (3)

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Action Plans for Improvement

Action Plans for Improvement Description

To improve the outcome for this SLO, I plan to re-emphasize these chordate traits more often throughout the semester.

Due Date

Dec 15 2017

Perhaps a handout would be useful here where students could fill in details for all of the major vertebrate groups on how they vary in chordate traits.

Status
Planned

Measures

M1 Final Exam Question

There is a multiple choice question on the final asking the students to demonstrate an understanding of the key traits chordates share.

Methodology

Students will answer a question on the final exam to demonstrate understanding.

Source of Evidence:

Target

70% success

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
70% of the students in the course will correctly answer the multiple choice question about chordate traits.	92% of the students correctly answered this question.	This is the first time that I have this goal. Therefore, there is nothing to which to compare it from previous Weave assessments.	Academic: Student Learning Acceptable	Met

Analysis of Finding and Evaluation Results

Eleven of the 12 students correctly answered this question. The average of the final exam was an 86%. I suspect that the one student who answered this question incorrectly likely mis-read the options or failed to study this material from early on in the semester. I don't think that this topic needs to much discussion. I cover this topic in depth at the start of the semester during our second chapter and go into some detail about these traits and how evolution acts upon them to create

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
				the myriad diversity that we see in vertebrates.

SLO3

Diversification of vertebrates

Demonstrate an understanding of how the diversification of vertebrates and their functional abilities results from evolutionary modifications to the common body plan all vertebrates share.

Supported Initiatives

Standards (2)

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General Education (1)

10: Science, Math, and Technology - Students will demonstrate the ability to evaluate observations, inferences, or relationships in works under investigation.

Institutional Priorities (0)

Strategic Initiatives (3)

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Action Plans for Improvement

Action Plans for Improvement Description

To improve student performance on this particular essay, I will continue to encourage students to re-visit their previous essays from exams to learn from their mistakes. I also will tie this into the writing assignment since that involves so much revision and improvement. I will make writing a more focal part of the course.

Due Date

Dec 15 2017

Status

Planned

Measures

M1

Final Exam Essay

There is an essay question on the final asking the students to demonstrate an understanding of the diversification of feeding and digestion that mammals exhibit.

Methodology

Students will write essays on the final exam to demonstrate understanding, and students ought to be able to write essays for an upper level biology elective.

Source of Evidence:

Target

70% success

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
70% of the students in the course will earn at least 70% of the points for the mammalian diet question.	64% of the students earned at least 70% of the points	This is the first year I have this goal and therefore, have nothing to which to compare it.	Academic: Target not met but acceptable	Not Met

Analysis of Finding and Evaluation Results

Eleven of 12 students answered this question on the final, and

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
				seven earned at least 70% of the points. The average score for this questions was a 78%. I am very surprised by this finding because this is the same exact essay that was on the third lecture exam the week before and we had just finished this chapter the week before that. I spend much time discussing vertebrate and mammalian variation when it comes to the digestive tract. I show many diagrams and videos from the internet to demonstrate this variability. I think that the students should have done a better job on this question. Additionally, I tell them that the essay questions on their lecture exams will be the same questions that they see on the final. There should be no excuse for under-performing on a question like this. The students that did well clearly listened to my instructions and worked hard to improve.

PO2

Read primary research

To be able to read primary research articles, interpret and organize their findings, and give scientific presentations.

Student Learning Outcomes

SLO1

Present primary literature

Identify, summarize, and present primary literature about vertebrate evolution.

Supported Initiatives

Standards (2)

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(Student achievement)

General Education (1)

10: Science, Math, and Technology - Students will demonstrate the ability to evaluate observations, inferences, or relationships in works under investigation.

Institutional Priorities (0)

Strategic Initiatives (3)

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Action Plans for Improvement

Action Plans for Improvement Description

The class achieved the goal for this SLO. I still want to see improvement overall in their writing. I plan to add two more smaller writing assignments earlier in the semester. I did one of these later in the semester and I liked how it turned out. Students appreciated the small assignments for additional points.

Due Date

Dec 15 2017

Status

Planned

Measures

M1

Summarizing scientific literature

Students will select a current primary, scientific article on vertebrate evolution and summarize and respond to the article.

Methodology

Students will learn how briefly to summarize, in their own words, a scientific article and then learn how to objectively respond to the article by writing a response. Students will then engage in peer reviewing and have the opportunity to write three total drafts in order to improve their writing skills and learn from any mistakes.

Source of Evidence: Written assignment

Target

70% success

Target	Findings	Improvements Achieved from Previous Action Plans	Improvement Type	Status
70% of the students will earn at least a 70% on the writing assignment.	83% (10 of 12) of the class achieved this goal.	The findings for this SLO from this fall (2016) are not different from the previous year. Last year I also had 83% of the class earning 70% or more of the points available for the writing assignment. This is encouraging.	Academic: Student Learning Acceptable	Met

Analysis of Finding and Evaluation Results

83% of the class earned 70% or more of the available points for the writing assignment. The two students who did not achieve this goal earned 65% and 66%. Most students exhibited a great improvement in writing ability, and the average of the assignment was an 82%. The students who achieved this goal did an excellent job improving their writing and listening to my recommendations on their writing. The students who did not achieve the goal failed to follow my suggestions multiple times. While the class met this goal, I am still eager to see all students greatly improve their writing.