

# Affordable Learning Georgia Textbook Transformation Grants

## Final Report

*To submit your Final Report, go to the Final Report submission page on the ALG website:*

*[http://affordablelearninggeorgia.org/site/final\\_report\\_submission](http://affordablelearninggeorgia.org/site/final_report_submission)*

*Final report submission requires four files:*

- *This completed narrative document*
- *Syllabus or syllabi*
  - *(if multiple files, compress into one .zip folder)*
- *Qualitative/Quantitative Measures data files*
  - *(if multiple files, compress into one .zip folder)*
- *Photo of your team or a class of your students w/ at least one team member, minimum resolution 800x600px*
  - *(nearly all smartphones take photos larger than this size by default)*

*Follow the instructions on the webpage for uploading your documents. Based on receipt of this report, ALG will process the final payment for your grant. ALG will follow up in the future with post-project grantee surveys and may also request your participation in a publication, presentation, or other event.*

## General Information

**Date:** December 5, 2019

**Grant Round:** Twelve

**Grant Number:** Project #389

**Institution Name(s):** Augusta University

**Project Lead:** Soma Mukhopadhyay, Augusta University [smukhopadhyay@augusta.edu](mailto:smukhopadhyay@augusta.edu)

**Team Members:** Lisa Ruggiero Wagner, Clemson University (previously Augusta University) [lrwagne@clemson.edu](mailto:lrwagne@clemson.edu)

**Course Name(s); Course Numbers:** Human Anatomy & Physiology; Biology 2111, Biology 2112

**Semester Project Began:** Fall 2018

**Final Semester of Implementation:** Fall 2019

**Total Number of Students Affected During Project:** 379

## 1. Narrative

### A. *Describe the key outcomes, whether positive, negative, or interesting, of your project.*

- Our purpose was to develop an entirely new learning resource for Anatomy and Physiology I & II laboratory courses: “Rabbit Anatomy: A Photographic Atlas and Dissection Guide” to match our curriculum and learning objectives at Augusta University.
- Our transformative experience included challenges and accomplishments. The challenge was to create a very high-quality tool that can support student dissection learning in the lab. Our time was limited due to our faculty teaching responsibilities and administrative commitments, therefore we chose to focus on two major areas – i) the muscles and ii) the blood vessels, which are the more difficult content areas, rather than all organ systems. Students are responsible for identification of muscles in Anatomy and Physiology – I lab and cardiovascular system in Anatomy & Physiology – II.
- As this was a pilot project, we shared the labeled photographs with our peers and students and corrected and updated the photographic plates as needed. It was a continuous process throughout the semester.
- We also developed surveys and had to get it approved by IRB, which also took some time, but it helped us to collect feedback about our resource. We will collect surveys in future semesters as well.
- We received help from a team of Instructional Designers who helped us to refine our product and make it digitally interactive for better learning for students. It is quite an excellent product which will have transformative impacts on lab experience for students and also for professors teaching the courses.
- It was a learning experience for us which resulted in creating an anatomy resource which will help in student learning not only for our Augusta University students but also for others who would like to use it for their lab.
- As our pdf files were very large, we decided to publish two resources instead of one. Part I: Muscular System will be for Anatomy & Physiology I and Part II: Cardiovascular System will be for Anatomy & Physiology II students.
- The student educational experience during the pilot period was highly positive.

### B. *Describe lessons learned, including any things you would do differently next time.*

- Because the laboratory curriculum is fairly standardized and consistent across professors and sections we solicited feedback from our colleagues who also taught these courses. It was a helpful component in the refining process.
- During the pilot study, we had loose photographs to share with our students. From next semester onwards we will be able to use the finished product: The Photographic Atlas. Those will be available digitally online and will be more convenient for students to use and practice for anatomical identification.

- Next semester we hope to distribute the surveys more efficiently and collect more feedback.

## 2. Quotes

i) "Dr. Soma,

In terms of the atlas containing pictures of labeled arteries and veins in the rabbit, it was very helpful. The diagrams were beneficial because the arteries and veins were easy to see and differentiate whereas on the rabbits we dissected in class would not always be as clear as the pictures in the atlas. The atlas was also helpful because it was correctly labeled which significantly helped reduce confusion and facilitate studying. Overall, the atlas made by Dr. Soma and associates is far superior to the previously provided handout."

ii) "Dear Dr. Soma,

I was a student in your Anatomy and Physiology II class during the Fall 2019 semester. I wanted to let you know that the photographic atlas you were developing helped me as well as my peers in our lab. It was very detailed and easier to understand compared to the older lab manual we were given. The photographs specifically were more helpful and realistic to what I was observing and studying during the class. We were able to view a clear perspective of the actual specimen (rabbit) we were dissecting from the pictures than the sketches."

iii) "I found that the labelled photographic images from the new rabbit atlas were extremely beneficial to the A&P 1 & 2 student body. The supplemental material allowed for students to be able to identify structures more efficiently, and with more certainty. The labelled images of the rabbit allowed students to better distinguish specific details such as, the various layers within muscles, as well as the orientation of muscles and blood vessels. Before the labelled photographs were shown in lab, it was more difficult for students to become confident in their ability to identify layers, orientation, and structures with absolute certainty. However, with this new resource students are able to compare whether they are identifying the proper structures or not. "

## 3. Quantitative and Qualitative Measures

### 3a. Uniform Measurements Questions

*The following are uniform questions asked to all grant teams. Please answer these to the best of your knowledge.*

#### **Student Opinion of Materials**

**Was the overall student opinion about the materials used in the course positive, neutral, or negative?**

Total number of students affected in this project: 379

- Positive: \_\_\_\_\_ % of \_\_\_\_\_ number of respondents
- Neutral: \_\_\_\_\_ % of \_\_\_\_\_ number of respondents
- Negative: \_\_\_\_\_ % of \_\_\_\_\_ number of respondents

Overall student opinion about the photographic plates were very positive. During Fall 19, we were still developing our resource, the atlas, so the complete product were not available to students. We collected feedback from students and our peers and incorporated those in the final product.

Following are average of responses received from ~151 students.

Cardiovascular System:

Agree: 93%

Neutral: 8%

Disagree: 1%

Muscles:

Agree: 85%

Neutral: 10%

Disagree: 5%

Detail information is shown in the survey report attached.

**Student Learning Outcomes and Grades**

**Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?**

*Student outcomes should be described in detail in Section 3b.*

Choose One:

- \_\_\_\_ Positive: Higher performance outcomes measured over previous semester(s)
- \_\_\_\_ Neutral: Same performance outcomes over previous semester(s)
- \_\_\_\_ Negative: Lower performance outcomes over previous semester(s)

Note: This is a pilot project and introduced to the students for the first time. Overall impact was positive based on the student feedback about our Rabbit Anatomy: A Brief Photographic Atlas”, but we do not have any comparative data from previous semesters.

**Student Drop/Fail/Withdraw (DFW) Rates**

**Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?**

**Drop/Fail/Withdraw Rate:**

*Depending on what you and your institution can measure, this may also be known as a drop/failure rate or a withdraw/failure rate.*

\_\_\_\_\_ % of students, out of a total \_\_\_\_\_ students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

- \_\_\_\_ Positive: This is a lower percentage of students with D/F/W than previous semester(s)
- \_\_\_\_ Neutral: This is the same percentage of students with D/F/W than previous semester(s)
- \_\_\_\_ Negative: This is a higher percentage of students with D/F/W than previous semester(s)

Note: Our newly created resource “Rabbit Anatomy: A Brief Photographic Atlas” was used by the students for the first time in Fall Semester 2019 as a pilot project. So, we do not have any data from previous semesters to compare.

### 3b. Measures Narrative

*In this section, summarize the supporting impact data that you are submitting, including all quantitative and qualitative measures of impact on student success and experience. Include all measures as described in your proposal, along with any measures developed after the proposal submission.*

*[When submitting your final report, as noted above, you will also need to provide the separate file (or .zip with multiple files) of supporting data on the impact of your Textbook Transformation, such as surveys, analyzed data collected, etc.]*

- *Include measures such as:*
  - *Drop, fail, withdraw (DFW) delta rates*
  - *Course retention and completion rates*
  - *Average GPA*
  - *Pre-and post-transformation DFW comparison*
  - *Student success in learning objectives*
  - *Surveys, interviews, and other qualitative measures*
- *Indicate any co-factors that might have influenced the outcomes.*

## 4. Sustainability Plan

- *Describe how your project team or department will offer the materials in the course(s) in the future, including the maintenance and updating of course materials.*
  - The adoption of this atlas has been widely embraced by the departmental chair and the faculty involved in the teaching of Biology 2111 & Biology 2112.
  - This atlas will be a required OER text for each course in the future. Modifications will be made as needed and the OER provides for ease in completion, if needed.
  - There is a need and opportunity for additional volumes- for example, an organ systems volume.

## 5. Future Plans

- *Describe any impacts or influences this project has had on your thinking about or selection of learning materials in this and other courses that you will teach in the future.*
  - The students' enthusiastic and critical adoption of this atlas during the pilot period was confirmation that a well-done, accurate, user friendly OER can be an important component in the student learning experience.
- *Describe any planned or actual papers, presentations, publications, or other professional activities that you expect to produce that reflect your work on this project.*
  - We are going to submit proposal to present at Medical College of Georgia Education Day at Augusta University (30 Apr 2020).
  - Abstract titled "Development of an Anatomy Resource: An Experiential Journey" submitted by Soma Mukhopadhyay is accepted for presentation (poster) at SoTL Commons Conference at Savannah, GA (20 – 21 Feb 2020).

## 6. Description of Photograph

- *On the Final Report Submission page, you will be submitting a photo. In this document, list the names of the people shown in this separately uploaded photograph, along with their roles.*





**Authors: Soma Mukhopadhyay & Lisa Ruggiero Wagner**



**Soma Mukhopadhyay with her students in Anatomy & Physiology class at Augusta University.**