

Application Details

Manage Application: ALG Textbook Transformation Grants

Award Cycle: Round 9

Internal Submission Deadline: Sunday, April 30, 2017

Application Title: 328

Application ID: #001758

Submitter First Name: Sharryse

Submitter Last Name: Henderson

Submitter Title: Professor of Biology

Submitter Email Address: shenders@highlands.edu

Submitter Phone Number: 678-872-8112

Submitter Campus Role: Other

Applicant First Name: Carol

Applicant Last Name: Hoban

Co-Applicant Name: Sharryse Henderson

Applicant Email Address: choban@highlands.edu

Applicant Phone Number: 678-872-8094

Primary Appointment Title: Assistant Professor of Biology

Institution Name(s): Georgia Highlands College

Submission Date: Monday, May 1, 2017

Proposal Title: 328

Final Semester of Instruction: Spring 2018

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Carol Hoban, Assistant Professor of Biology and Principal Investigator, Division of Natural Science and Physical Education, Georgia Highlands College, choban@highlands.edu

Sharryse Henderson, Professor of Biology and Co-PI, Division of Natural Science and Physical Education, Georgia Highlands College, shenders@highlands.edu

Merry Clark, Associate Professor of Biology, Division of Natural Science and Physical

Education, Georgia Highlands College, mclark@highlands.edu

Kimberly Subacz, Instructor of Biology, Division of Natural Science and Physical Education, Georgia Highlands College, ksubacz@highlands.edu

Christin Collins, Assistant Librarian of Public Services, Paulding Campus Library, Georgia Highlands College, ccollins@highlands.edu

Amanda West, Institutional Research Analyst, Georgia Highlands College, awest@highlands.edu

Sponsor, (Name, Title, Department, Institution):

Renva Watterson, Ed.D.

Vice President of Academic Affairs

Georgia Highlands College

Course Names, Course Numbers and Semesters Offered:

Anatomy and Physiology I - BIOL 2121K - offered fall, spring, and summer semesters

Anatomy and Physiology II - BIOL 2122K - offered fall, spring, and summer semesters

Average Number of Students per Course Section: 24

Number of Course Sections Affected by Implementation in Academic Year: 60

Total Number of Students Affected by Implementation in Academic Year: 1440

List the original course materials for students (including title, whether optional or required, & cost for each item): BIOL 2121K and BIOL 2122K: Visual Anatomy and Physiology, 3rd Edition by Martini, Ober, Nath, Bartholomew, and Petti; REQUIRED FOR BOTH COURSESCOST: \$315.76

Proposal Categories: No-Cost-to-Students Learning Materials

Requested Amount of Funding: \$22,826

Original per Student Cost: \$315.76

**Post-Proposal Projected
Student Cost:** \$0

**Projected Per Student
Savings:** \$315.76

**Projected Total Annual
Student Savings:** \$284,184

Creation and Hosting Platforms Used ("n/a" if none):

Desire2Learn (D2L) by Brightspace

MERLOT II

USG LibGuides and LibGuides by SpringShare

GALIELO Open Learning Materials

Project Goals:

The United State Public Interest Research Group (USPIRG) surveyed college students across the US and concluded that the rising cost of college textbooks has a direct impact on student enrollment in and progression through college (1). In their report, *Fixing the Broken Textbook Market*, 65% of those surveyed decided not to purchase a textbook for at least one class and of those students, 94% believed that not purchasing a textbook would hurt their grade. Nearly half the students surveyed stated that the price of textbooks directly impacted their decision regarding the number and type of courses in which to enroll. Studies have also shown a correlation between not purchasing textbooks and increased likelihood of failure or withdrawal from courses (2). Furthermore, the Bureau of Labor Statistics reports that the cost of college textbooks has risen three times faster than the rate of inflation in the last 30 years - far outpacing health care expenses and home prices (3). Exacerbating this issue is that fact that only five publishers currently control 85% of the textbook market and the majority of publishers are marketing textbooks to faculty rather than to students who face numerous financial barriers to success in college (4). Obviously, there is a great need to remove the barriers that students face in pursuing higher education particularly in the STEM courses.

In this project, we propose to engage in a department-wide effort to transform two of our Gateway courses, Anatomy & Physiology I (BIOL 2121K) and Anatomy and Physiology II (BIOL 2122K) by developing interactive instructional learning material (screencasts and tutorial videos) and other ancillary materials (chapter outlines, PowerPoints, study guides, practice quizzes, and test banks). This project strives to improve access to these courses by developing not only ancillary materials and resources to support our OER materials, but also to develop free and open-access learning materials that offer equivalent or better educational effectiveness through online offerings of proposed courses that meet the internationally

recognized Quality Matters (QM) standards.

Our project goals are to:

Identify and adopt appropriate Open Educational Resource (OER) to best compliment student-learning outcomes for BIOL 2121K and BIOL 2122K. Priority will be given to OpenStax Textbooks.

Generate new OERs if appropriate OERs are not currently available and make them freely-accessible using LibGuides, Merlot II, D2L, and GALILEO Open Learning Materials website so that they are readily accessible to the public.

Redesign all course materials for BIOL 2121K and BIOL 2122K using the OER framework and available OER ancillary materials (images, tables, test banks, etc.).

Develop multimedia instructional screencasts and tutorial videos to supplement adopted OER for BIOL 2121K and 2122K.

Develop free and open-access learning materials that offer equivalent or better educational effectiveness through online offerings of BIOL 2121K and BIOL 2122K that meet the internationally recognized Quality Matters (QM) standards.

Improve student success in BIOL 2121K and BIOL 2122K and reduce drop/fail/withdraw (DFW) rates in courses that currently have the highest DFW rates at GHC.

Survey students enrolled in the redesigned courses and faculty who teach them to assess adopted OERs with regard to 1) convenience and ease-of-use, 2) effectiveness and quality, and 3) attainment of student learning outcomes.

Statement of Transformation:

Georgia Highlands College (GHC) is a limited four-year college in the University System of Georgia that serves more than 6000 students in northwest Georgia and Northeast Alabama. GHC offers transfer associate degree programs, career associate degree programs, and targeted baccalaureate degree programs as well as instruction on five diversified campuses, which provides the opportunity to develop, implement, and compare new teaching materials and pedagogies across campuses.

Mean annual household income in the geographic areas served by GHC is about \$61,927 (5). According to the 2015-2016 Georgia Highlands College Fact Book, the average student at GHC is a 23.9 year-old female. Furthermore, approximately 45.4% of GHC students are eligible for Pell Grant and many of our students have full-time jobs in addition to undertaking a full course load (at least 12 hours). Many students are non-traditional students who are concurrently working a full-time job in addition to scholarly endeavors (6). Low-cost course materials will increase access to STEM courses taught at GHC and should lead to a higher rate of utilization of the resources (7). Currently, the course materials for BIOL 2121K and BIOL 2122K at GHC utilize proprietary textbooks packaged together with online homework solutions at a cost of over \$315 each. Furthermore, students lose access to the e-text after 12 months. The price of course materials makes these courses an unnecessarily expensive

barrier to the first year of college rather than a valued entry level science course that builds study skills. This course transformation will save students at Georgia Highlands College over \$284,000 and provide students with a valuable, peer-reviewed, up-to-date textbook at no-cost and ancillary instructional materials that complement the textbook and have been fully vetted through GHC faculty.

BIOL 2121K and BIOL 2122K constitute a required science sequence in Area F for all nursing and dental hygiene majors. Furthermore, a select number of other majors are required to take BIOL 2121K but may or may not be required to take BIOL 2122K. These majors include: Medical Technology, Physical Therapy, Physician Assistant, Occupational Therapy, Respiratory Therapy, and Radiologic Technology. Both courses are offered in fall, spring, and summer semesters at all 5 campus locations of Georgia Highlands College. Currently both are offered in a face-to-face environment only; however, development of an online format will enhance the delivery of these courses. All ancillary materials created as part of this grant will be designed with the internationally recognized Quality Matters (QM) standards for easy use in the online format.

Additionally, the primary student learning outcomes of BIOL 2121K and BIOL 2122K are to improve student understanding of the basic concepts of biology and biochemistry (cell theory, cell structure, cell metabolism and cell reproduction) before proceeding to a detailed study of the normal histology, gross anatomy and physiology of each body system within the human organism. Emphasis is placed on homeostatic mechanisms as they relate to health and science. A major part of accomplishing these student-learning outcomes and developing related course materials is the use of current technologies. The Pearson Mobile Device Survey published in 2014 suggests 8 out of 10 students use smartphones on a regular basis (Pearson Device Survey, 2014). Our team feels the development of not only interactive multi-media supplements and ancillary resources but also an online delivery format for BIOL 2121K and BIOL 2122K, course materials should reflect current trends and increasing use of technology by our students and provide instructors a more effective means to engage students, administer the course content, and assist students in gaining a deeper understanding of the key principles being taught.

Transformation Action Plan:

The action plan for this project will consist of procuring and adopting an OER followed by evaluation of the OER to determine which ancillary materials may need to be adapted and whether new instructional materials need to be created in order to support the OER in both face-to-face and online instructional formats. After implementation, quantitative and qualitative data will be collected to determine the efficacy of the OER and related materials. The following activities will be conducted during the project:

Training: Team members will participate in various forms of training prior to and during implementation of this project. At least two team members will travel to Macon to attend the

Kick-Off Meeting. Team members will participate in webinars hosted by USG staff on Galileo Open Learning Materials repository. Team members will receive training from OpenStax staff. Team members will view archived videos from adaptive and course-authoring software companies in order to prepare for the creation of multimedia instructional resources.

Review and Adoption: Open Educational Resources will be identified and pooled for review by the team. Possible sources will include OER's already available through OpenStax, CNX, Cool4Ed, Merlot, Saylor Academy, GALILEO, Lumen Learning, and others. Preference will be given to OpenStax but final decision will be made on the basis of current student learning outcomes for the transformed course(s), applicability in the classroom, and teaching experience of team members.

Evaluation of Selected OER: Once an appropriate OER is selected, we will examine how and if these materials can be utilized in both face-to-face and online settings. Materials will then be organized into various areas of specialty and assigned to individual team members for review. Team members will determine if the content area needs to be adapted or if additional resources need to be created.

Adaptation and Creation of Ancillary Materials: Each team member will adapt open-source instructional materials in the content areas to which they are assigned. If no appropriate open-source instructional material is publically available, team members will create appropriate materials. Team members will create chapter outlines, study guides, PowerPoints, practice quizzes, and multimedia screencasts for at least 10-15 chapter for each course. Development of new course materials will follow recognized Quality Matters (QM) standards for future implementation in online formats. Furthermore, all ancillary materials created during this project will be developed under a Creative Commons License and hosted by open-educational repositories.

Course Syllabi: Master syllabi for each course will be created and made available for faculty and students on D2L. The master syllabi will 1) provide consistency of instruction and assessment in all sections of the course, 2) provide clear instructions on how to access newly created course materials, 3) provide a list of assigned readings and associated deadlines from the OER textbook, and 4) a list of assigned multimedia screencasts and dates of use.

Course Evaluation/Redesign: After implementation of OER and newly created instructional materials begins, the team will evaluate the effectiveness of the new materials and feasibility for the students. This will include 1) a comparison of grades from when the previous textbook was used and during the incorporation of new materials and 2) surveys to determine how the students and faculty feel about the implementation and use of the new material. It will also include adjustments in the course material and syllabi, omission of unnecessary material, and creation/adoption of new material where needed.

Hosting: All course materials developed in support of the ALG Textbook Transformation

project will be stored within a master course on GHC's learning management system, currently Brightspace by D2L (<http://www.brightspace.com>). This will allow all Georgia Highlands' BIOL 2121K and BIOL 2122K instructors to have free and unrestricted access for use in their courses. Furthermore, newly developed course materials will be uploaded to LibGuides by SpringShare (<http://springshare.com/libguides>), which serves as a comprehensive content management system used by thousands of libraries worldwide, and MERLOT II, a curated collection of free and open online teaching, learning, and faculty development services contributed and used by an international education community. Finally, at the conclusion of this ALG project, all newly developed course materials will be posted on the GALIELO Open Learning Materials website (<http://oer.galileo.usg.edu/>). Consequently, any student enrolled in BIOL 2121K and BIOL 2122K and any faculty teaching at GHC, within the USG, or across the country or internationally will have 24-hour-access to our OERs and ancillary materials.

Each of the following team members will take an active role in implementing the Transformation Action Plan:

Carol Hoban: Principle Investigator; will oversee project from start to finish including: writing the grant proposal, identification and adoption of appropriate OERs, development of related course materials; administration of surveys and data collection, and submission of the project final report. She will also serve as a curriculum expert for both BIOL 2121K and BIOL 2122K.

Sharryse Henderson: Co-PI and Online Instruction Expert; provide expertise in online instruction and online course development; provide administrative support, assist in development of grant proposal, submission of application, progress report and final report, and provide expertise in carrying out the grant plan of action.

Merry Clark: Curriculum Expert; will develop and/or modify open source ancillary materials to compliment the selected OER in BIOL 2121K. These ancillary materials include but are not limited to chapter outlines, study guides, PowerPoints, practice quizzes, and multi-media screencasts.

Kimberly Subacz: Curriculum Expert; will develop and/or modify open source ancillary materials to compliment the selected OER in BIOL 2122K. These ancillary materials include but are not limited to chapter outlines, study guides, PowerPoints, practice quizzes, and multi-media screencasts.

Christin Collins: Library Support Staff; will collaborate with team members to identify and adopt OERs and make OER materials created during this project freely accessible on LibGuides, Merlot II, and Galileo Open Resource Materials.

Amanda West: Institutional Research Analyst; will produce pre and post surveys, administer surveys, and analyze data from surveys; collect and analyze DFW rates related to this project

Quantitative & Qualitative Measures: Both quantitative and qualitative methods will be used to measure and gauge the success of our transition from the use of proprietary course materials to OER and no-cost ancillary materials. Quantitative data from DFW rates for the last two years during which traditional texts were used in BIOL 2121K and 2122K will be compared to DFW rates for the transformed courses. Both quantitative and qualitative methods will consist of pre- and post-course surveys that measure the number of students who use the textbook, the frequency in which they access the textbook, the ways in which they use the textbooks, and reasons they accessed the textbook. Students will also be asked to compare their experiences in the redesigned course compared to classes using traditional texts. Similarly, pre- and post-course surveys will quantify faculty use of, and any problems associated with, the open source textbooks. Faculty will also be asked to provide detailed qualitative critiques of the new ancillary materials adopted/created for each course. An optional discussion forum on D2L will also be devised to elicit additional qualitative feedback from students with regard to ease of material access and use -- including text design, quality and readability, and appropriateness of ancillary materials. All qualitative and quantitative data will be compiled, analyzed and presented in a mid-project report and final project report.

Timeline:

May 2017 - August 2017

Attend Grant Kick-off meeting

Grant team members participate in training with OpenStax staff, attend webinar(s) hosted by USG staff on the use of Galileo Open Learning Materials website, and view archived web events offered by adaptive and authoring software companies

Identify open source text and accompanying resources (e.g., short films, web-based resources, interactive exercises, etc.)

Identify topics/concepts that require adaptation and creation of supplemental materials

Assess course learning objectives (CLOs) with reference to new text adoption and resources

Create 50% of BIOL2121K and BIOL2122K ancillary materials, screencasts, and multimedia instructional resources

Design 50% of BIOL 2121K and BIOL2122K laboratory experiments and schedule to parallel

OpenStax textbook

Conduct workshop to train new part-time faculty and new full-time faculty in the use of selected open source materials

August 2017 - December 2017

Create remaining 50% BIOL 2121K and BIOL 2122K instructional materials for lecture and laboratory components of the courses

Create D2L master course shell for all sections and include CLOs, open source textbook and resource materials, and surveys and discussion

Develop pre and post-course surveys for students and methodology for delivery and analytics

Conduct fall semester courses with open source text, ancillary materials, surveys, and D2L discussion

January 2018 - May 2018

Analyze Fall 2017 data

Revise surveys, D2L Master course and CLO's, if necessary

Conduct spring semester courses with open source text, ancillary materials, surveys, and D2L discussion

Compile and analyze Spring 2018 data at the conclusion of the semester

Upload newly created course materials into the college's Learning Management System (D2L), to MERLOT II, OpenStax CNS, and Galileo Open Learning Materials repository for dissemination and delivery to division faculty and students

Generate and submit final report summarizing study findings

Budget:

We are requesting funding according to the **Large-Scale Transformation** category for department-wide adoption of OER textbook for multiple courses and sections of BIOL 2121K and BIOL 2122K with enrollments of 500 students or more per academic year. The total amount of funding requested to support this project is: **\$22,826**

Release Time for Faculty - \$20,000 total;

Carol Hoban, Assistant Professor and Principal Investigator: \$5000

Sharryse Henderson, Professor of Biology and Co-PI: \$5000

Merry Clark, Associate Professor of Biology: \$5000

Kimberly Subacz, Instructor of Biology: \$5000

Technology Support - \$2026 total;

(2) iPad Pro 12.9 inch with 128 GB for recording multimedia screencasts - \$899 each

(2) Apple Pencil for iPad Pro - \$99 each
Adaptive and authoring software license - \$30

Travel to Grant Kick-Off Meeting - \$800 total;

Carol Hoban, Assistant Professor of Biology and Principal Investigator: \$400

Kimberly Subacz, Instructor of Biology: \$400

Sustainability Plan:

Anatomy and Physiology I (2121K) and II (2122K) will always be offered at GHC, as they are required for nursing majors, dental hygiene majors and numerous other allied health majors. Any course materials generated by funding from this grant will be made freely available under the Creative Commons license for the public to access and use. Course materials will be reviewed annually and any needed updates will be made. To ensure sustainability, links to online resources will be checked for availability and updated as needed. In addition, we will contribute to the quality of the OpenStax project by continuing to monitor and report any and all errors found in the OpenStax Anatomy and Physiology textbook to the editor-in-chief (David Harris). Once the transformation of BIOL 2121K and BIOL 2122K is complete, we will explore the possibility of expanding some of the successful changes to other biology courses. Furthermore, we view the development of an online course format for Anatomy & Physiology as a long-term commitment to the success of students at GHC and expect that this transformation will ultimately have a positive impact on students enrolled in BIOL 2121K and BIOL 2122K. Team members will review and update all generated course materials in the master course templates three times a year (August, January, and May) to ensure they comply with the internationally recognized Quality Matters (QM) standards. This maintenance process is vitally important to ensure the most up-to-date and relevant materials are available to faculty and students.

GEORGIA HIGHLANDS



COLLEGE

FLOYD CAMPUS
3175 Cedartown Highway
Rome, GA 30161

VICE PRESIDENT
FOR ACADEMIC AFFAIRS

April 28, 2017

Dear ALG Grants Committee Members:

I am pleased to write this letter in support of this splendid group of biological science professors, as they seek grant funding to incorporate free and open texts and other instructional materials for two courses, BIOL 2121K and BIOL 2122K, Anatomy and Physiology I and II. There are numerous reasons of efficiency, pedagogy, and instructional transformation which compel me to support this initiative.

First, this outstanding team of collegiate educators will engage in a thoughtful process that will broadly affect the student body at Georgia Highlands College. We expect to affect 1440 students per year through redesign of these courses, a significant number of students needing to complete the health science pathway. Specifically, it would directly impact a quarter of our entire college population.

Second, money saved through this plan's implementation would provide opportunity for both economy and learning. Case in point, with textbook costs rising at an unheard of rate, our students could be saving nearly a quarter of a million dollars, \$284,184, by replacing the current text, at \$315 per unit, with open educational resources and through the generation of new lab manual and open learning materials that will be freely available to all students. Without doubt, this affects our students' foundational learning, tenacity, and ability to thrive in this class.

Finally, this affordable learning grant will serve as a catalyst for enhanced teaching and learning. It will serve as a springboard for innovation on the part of faculty who work to make those materials more creative, applied, and relevant in today's biology classroom. It will send the message that GHC faculty members care about their students, economically, socially and intellectually. It will urge students to persist and to complete in a discipline that too often is a stumbling block to college completion.

I wholeheartedly endorse this ALG Transformation Grant application from these forward-thinking, action-oriented professors. Their plan is noteworthy and laudable. Please allow them to continue their essential work through the approval of the grant.

Sincerely,

Renna Watterson, Ed.D.

highlands.edu

Affirmative Action / Equal Employment and Educational Opportunity Institution

CARTERSVILLE CAMPUS
678-872-8000

DOUGLASVILLE SITE
678-872-4200

FLOYD CAMPUS
706-802-5000

MARIETTA SITE
678-872-8501

PAULDING SITE
678-946-1100

Affordable Learning Georgia Textbook Transformation Grants

Round Nine

For Implementations beginning Summer Semester 2017

Running Through Spring Semester 2018

Proposal Form and Narrative

Submitter Name	Sharryse Henderson
Submitter Title	Professor of Biology
Submitter Email	shenders@highlands.edu
Submitter Phone Number	678-872-8112
Submitter Campus Role	Other; Professor and Coordinator
Applicant Name	Carol Hoban
Applicant Email	choban@highlands.edu
Applicant Phone Number	678-872-8094
Primary Appointment Title	Assistant Professor of Biology
Institution Name(s)	Georgia Highlands College
Team Members	Carol Hoban , Assistant Professor of Biology and Principal Investigator, Division of Natural Science and Physical Education, Georgia Highlands College, choban@highlands.edu Sharryse Henderson , Professor of Biology and Science Coordinator, Division of Natural Science and Physical Education,

	<p>Georgia Highlands College, shenders@highlands.edu</p> <p>Merry Clark, Associate Professor of Biology, Division of Natural Science and Physical Education, Georgia Highlands College, mclark@highlands.edu</p> <p>Kimberly Subacz, Instructor of Biology, Division of Natural Science and Physical Education, Georgia Highlands College, ksubacz@highlands.edu</p> <p>Christin Collins, Assistant Librarian of Public Services, Paulding Campus Library, Georgia Highlands College, ccollins@highlands.edu</p> <p>Amanda West, Institutional Research Analyst, Georgia Highlands College, awest@highlands.edu</p>				
Sponsor, Title, Department, Institution	<p>Renva Watterson, Ed.D.</p> <p>Vice President for Academic Affairs</p> <p>Georgia Highlands College</p>				
Proposal Title	<p>ALG Textbook Transformation Project to adopt and/or create Open Educational Resources (OERs) for Anatomy and Physiology I (BIOL 2121K) and Anatomy and Physiology II (BIOL 2122K).</p>				
Course Names, Course Numbers and Semesters Offered	<p>Anatomy and Physiology I (BIOL 2121K) and Anatomy and Physiology II (BIOL 2122K) constitute a required science sequence in Area F for all nursing and dental hygiene majors. Furthermore, a select number of other majors are required to take BIOL 2121K but may or may not be required to take BIOL 2122. These majors include: Medical Technology, Physical Therapy, Physician Assistant, Occupational Therapy, Respiratory Therapy, and Radiologic Technology. Both courses are offered in fall, spring, and summer semesters at all 5 campus locations of Georgia Highlands College. Currently both are offered in a face-to-face environment only.</p>				
Final Semester of Instruction	<p>Spring 2018</p>				
Average Number of Students Per Course Section	<p>BIOL 2121K=2 4</p> <p>BIOL 2122K=2</p>	<p>Number of Course Sections Affected by Implementation in</p>	<p>BIOL 2121K =35</p> <p>BIOL 2122K</p>	<p>Total Number of Students Affected by Implementation in Academic</p>	<p>BIOL 2121K =840</p> <p>BIOL 2122K</p>

	4	Academic Year	=25	Year	=600 Combine d student impact= 1440
Award Category (pick one)	<input type="checkbox"/> No-or-Low-Cost-to-Students Learning Materials <input type="checkbox"/> OpenStax Textbooks <input checked="" type="checkbox"/> Interactive Course-Authoring Tools and Software <input type="checkbox"/> Specific Top 100 Undergraduate Courses				
List the original course materials for students (including title, whether optional or required, & cost for each item)	BIOL 2121K and BIOL 2122K: Visual Anatomy and Physiology, 3 rd Edition by Martini, Ober, Nath, Bartholomew, and Petti; REQUIRED Cost: \$315.76				
Requested Amount of Funding	\$22,826				
Original Per Student Cost	BIOL 2121K = \$315.76 BIOL 2122K = \$315.76				
Post-Proposal Projected Per Student Cost	BIOL 2121K = \$0 per student BIOL 2122K = \$0 per student				
Projected Per Student Savings	BIOL 2121K = \$315.76 BIOL 2122K = \$315.76				
Projected Total Annual Student Savings	BIOL 2121K = 840 BIOL 2121 students X \$315.76 = \$265,238.40 BIOL 2122K = The majority of BIOL 2122K students have their textbook from when they were enrolled in the first course in the sequence (BIOL 2121K). We estimate only about 10% of students would likely be transfer students, transient students, or readmits that might not already have a copy of the text. Calculation of anticipated				

	<p>savings: (600 BIOL 2122K students X 10%) X \$315.76 = \$18,945.60</p> <p>COMBINED SAVINGS: \$284,184</p>
<p>Creation and Hosting Platforms Used</p>	<p>Desire2Learn (D2L) by Brightspace</p> <p>MERLOT II</p> <p>USG LibGuides and LibGuides by SpringShare</p> <p>GALIELO Open Learning Materials</p>

NARRATIVE

1.1 PROJECT GOALS

The United State Public Interest Research Group (USPIRG) surveyed college students across the US and concluded that the rising cost of college textbooks has a direct impact on student enrollment in and progression through college (1). In their report, *Fixing the Broken Textbook Market*, 65% of those surveyed decided not to purchase a textbook for at least one class and of those students, 94% believed that not purchasing a textbook would hurt their grade. Nearly half the students surveyed stated that the price of textbooks directly impacted their decision regarding the number and type of courses in which to enroll. Studies have also shown a correlation between not purchasing textbooks and increased likelihood of failure or withdrawal from courses (2). Furthermore, the Bureau of Labor Statistics reports that the cost of college textbooks has risen three times faster than the rate of inflation in the last 30 years - far outpacing health care expenses and home prices (3). Exacerbating this issue is that fact that only five publishers currently control 85% of the textbook market and the majority of publishers are marketing textbooks to faculty rather than to students who face numerous financial barriers to success in college (4). Obviously, there is a great need to remove the barriers that students face in pursuing higher education particularly in the STEM courses.

In this project, we propose to engage in a department-wide effort to transform two of our Gateway courses, Anatomy & Physiology I (BIOL 2121K) and Anatomy and Physiology II (BIOL 2122K) by developing interactive instructional learning material (screencasts and tutorial videos) and other ancillary materials (chapter outlines, PowerPoints, study guides, practice quizzes, and test banks). This project strives to improve access to these courses by developing not only ancillary materials and resources to support our OER materials, but also to develop free and open-access learning materials that offer equivalent or better educational effectiveness through online offerings of proposed courses that meet the internationally recognized Quality Matters (QM) standards.

Our project goals are to:

- Identify and adopt appropriate Open Educational Resource (OER) to best compliment student-learning outcomes for BIOL 2121K and BIOL 2122K. Priority will be given to OpenStax Textbooks.
- Generate new OERs if appropriate OERs are not currently available and make them freely-accessible using LibGuides, Merlot II, D2L, and GALILEO Open Learning Materials website so that they are readily accessible to the public.
- Redesign all course materials for BIOL 2121K and BIOL 2122K using the OER framework and available OER ancillary materials (images, tables, test banks, etc.).
- Develop free and open-access learning materials that offer equivalent or better educational effectiveness through online offerings of BIOL 2121K and BIOL 2122K that meet the internationally recognized Quality Matters (QM) standards.
- Improve student success in BIOL 2121K and BIOL 2122K and reduce drop/fail/withdraw (DFW) rates in courses that currently have the highest DFW rates at GHC.
- Increase retention and completion of students at Georgia Highlands College by creating and implementing multimedia instructional screencasts to supplement

adopted OER for BIOL2121K and 2222K. Survey students enrolled in the redesigned courses and faculty who teach them to assess adopted OERs with regard to 1) convenience and ease-of-use, 2) effectiveness and quality, and 3) attainment of student learning outcomes.

1.2 STATEMENT OF TRANSFORMATION

Georgia Highlands College (GHC) is a limited four-year college in the University System of Georgia that serves more than 6000 students in northwest Georgia and Northeast Alabama. GHC offers transfer associate degree programs, career associate degree programs, and targeted baccalaureate degree programs as well as instruction on five diversified campuses, which provides the opportunity to develop, implement, and compare new teaching materials and pedagogies across campuses.

Mean annual household income in the geographic areas served by GHC is about \$61,927 (5). According to the 2015-2016 Georgia Highlands College Fact Book, the average student at GHC is a 23.9 year-old female. Furthermore, approximately 45.4% of GHC students are eligible for Pell Grant and many of our students have full-time jobs in addition to undertaking a full course load (at least 12 hours). Many students are non-traditional students who are concurrently working a full-time job in addition to scholarly endeavors (6). Low-cost course materials will increase access to STEM courses taught at GHC and should lead to a higher rate of utilization of the resources (7). Currently, the course materials for BIOL 2121K and BIOL 2122K at GHC utilize proprietary textbooks packaged together with online homework solutions at a cost of over \$315 each. Furthermore, students lose access to the e-text after 12 months. The price of course materials makes these courses an unnecessarily expensive barrier to the first year of college rather than a valued entry level science course that builds study skills. This course transformation will save students at Georgia Highlands College over \$284,000 and provide students with a valuable, peer-reviewed, up-to-date textbook at no-cost and ancillary instructional materials that complement the textbook and have been fully vetted through GHC faculty.

BIOL 2121K and BIOL 2122K constitute a required science sequence in Area F for all nursing and dental hygiene majors. Furthermore, a select number of other majors are required to take BIOL 2121K but may or may not be required to take BIOL 2122. These majors include: Medical Technology, Physical Therapy, Physician Assistant, Occupational Therapy, Respiratory Therapy, and Radiologic Technology. Both courses are offered in fall, spring, and summer semesters at all 5 campus locations of Georgia Highlands College. Currently both are offered in a face-to-face environment only; however, development of an online format will enhance the delivery of these courses. All ancillary materials created as part of this grant will be designed with the internationally recognized Quality Matters (QM) standards for easy use in the online format.

Additionally, the primary student learning outcomes of BIOL 2121K and BIOL 2122K are to improve student understanding of the basic concepts of biology and biochemistry (cell theory, cell structure, cell metabolism and cell reproduction) before proceeding to a detailed study of the normal histology, gross anatomy and physiology of each body system within the human organism. Emphasis is placed on homeostatic mechanisms as they relate to health and science. A major part of accomplishing these student-learning outcomes and developing related course materials is the use of current technologies.

The Pearson Mobile Device Survey published in 2014 suggests 8 out of 10 students use smartphones on a regular basis (Pearson Device Survey, 2014). Our team feels the development of not only interactive multi-media supplements and ancillary resources but also an online delivery format for BIOL 2121K and BIOL 2122K, course materials should reflect current trends and increasing use of technology by our students and provide instructors a more effective means to engage students, administer the course content, and assist students in gaining a deeper understanding of the key principles being taught.

1.3 TRANSFORMATION ACTION PLAN

The action plan will consist of procuring and adopting an OER followed by evaluation of the OER to determine which ancillary materials may need to be adapted and whether new instructional materials need to be created in order to support the OER in both face-to-face and online instructional formats. After implementation, quantitative and qualitative data will be collected to determine the efficacy of the OER and related materials. The following activities will be conducted during the project:

Training: Team members will participate in various forms of training prior to and during implementation of this project. At least two team members will travel to Macon to attend the Kick-Off Meeting. Team members will participate in webinars hosted by USG staff on Galileo Open Learning Materials repository. Team members will receive training from OpenStax staff. Team members will view archived videos from adaptive and course-authoring software companies in order to prepare for the creation of multimedia instructional resources.

Review and Adoption: Open Educational Resources will be identified and pooled for review by the team. Possible sources will include OER's already available through OpenStax, CNX, Cool4Ed, Merlot, Saylor Academy, GALILEO, Lumen Learning, and others. Preference will be given to OpenStax but final decision will be made on the basis of current student learning outcomes for the transformed course(s), applicability in the classroom, and teaching experience of team members.

Evaluation of Selected OER: Once an appropriate OER is selected, we will examine how and if these materials can be utilized in both face-to-face and online settings. Materials will then be organized into various areas of specialty and assigned to individual team members for review. Team members will determine if the content area needs to be adapted or if additional resources need to be created.

Adaptation and Creation of Ancillary Materials: Each team member will adapt open-source instructional materials in the content areas to which they are assigned. If no appropriate open-source instructional material is publically available, team members will create appropriate materials. Team members will create chapter outlines, study guides, PowerPoints, practice quizzes, and multimedia screencasts for at least 10-15 chapter for each course. Development of new course materials will follow recognized Quality Matters (QM) standards for future implementation in online formats. Furthermore, all ancillary materials created during this project will be developed under a Creative Commons License and hosted by open-educational repositories.

Course Syllabi: Master syllabi for each course will be created and made available for faculty and students on D2L. The master syllabi will 1) provide consistency of instruction and assessment in all sections of the course, 2) provide clear instructions on how to access newly created course materials, 3) provide a list of assigned readings and associated deadlines from the OER textbook, and 4) a list of assigned multimedia screencasts and dates of use.

Course Evaluation/Redesign: After implementation of OER and newly created instructional materials begins, the team will evaluate the effectiveness of the new materials and feasibility for the students. This will include 1) a comparison of grades from when the previous textbook was used and during the incorporation of new materials and 2) surveys to determine how the students and faculty feel about the implementation and use of the new material. It will also include adjustments in the course material and syllabi, omission of unnecessary material, and creation/adoption of new material where needed.

Hosting: All course materials developed in support of the ALG Textbook Transformation project will be stored within a master course on GHC's learning management system, currently Brightspace by D2L (<http://www.brightspace.com>). This will allow all Georgia Highlands' BIOL 2121K and BIOL 2122K instructors to have free and unrestricted access for use in their courses. Furthermore, newly developed course materials will be uploaded to LibGuides by SpringShare (<http://springshare.com/libguides>), which serves as a comprehensive content management system used by thousands of libraries worldwide, and MERLOT II, a curated collection of free and open online teaching, learning, and faculty development services contributed and used by an international education community. Finally, at the conclusion of this ALG project, all newly developed course materials will be posted on the GALIELO Open Learning Materials website (<http://oer.galileo.usg.edu/>). Consequently, any student enrolled in BIOL 2121K and BIOL 2122K and any faculty teaching at GHC, within the USG, or across the country or internationally will have 24-hour-access to our OERs and ancillary materials.

Each of the following team members will take an active role in implementing the Transformation Action Plan:

- **Carol Hoban:** Principle Investigator; will oversee project from start to finish including: writing the grant proposal, identification and adoption of appropriate OERs, development of related course materials; administration of surveys and data collection, and submission of the project final report. She will also serve as a curriculum expert for both BIOL 2121K and BIOL 2122K.
- **Sharryse Henderson:** Co-PI and Online Instruction Expert; provide expertise in online instruction and online course development; provide administrative support, assist in development of grant proposal, submission of application, progress report and final report, and provide expertise in carrying out the grant plan of action.
- **Merry Clark:** Curriculum Expert; will develop and/or modify open source ancillary materials to compliment the selected OER in BIOL 2121K. These ancillary materials include but are not limited to chapter outlines, study guides, PowerPoints, practice quizzes, and multi-media screencasts.
- **Kimberly Subacz:** Curriculum Expert; will develop and/or modify open source ancillary materials to compliment the selected OER in BIOL 2122K. These ancillary materials include but are not limited to chapter outlines, study guides,

PowerPoints, practice quizzes, and multi-media screencasts.

- **Christin Collins:** Library Support Staff; will collaborate with team members to identify and adopt OERs and make OER materials created during this project freely accessible on LibGuides, Merlot II, and Galileo Open Resource Materials.
- **Amanda West:** Institutional Research Analyst; will produce pre and post surveys, administer surveys, and analyze data from surveys; collect and analyze DFW rates related to this project

1.4 QUANTITATIVE AND QUALITATIVE MEASURES

Both quantitative and qualitative methods will be used to measure and gauge the success of our transition from the use of proprietary course materials to OER and no-cost ancillary materials. Quantitative data from DFW rates for the last two years during which traditional texts were used in BIOL 2121K and 2122K will be compared to DFW rates for the transformed courses. Both quantitative and qualitative methods will consist of pre- and post-course surveys that measure the number of students who use the textbook, the frequency in which they access the textbook, the ways in which they use the textbooks, and reasons they accessed the textbook. Students will also be asked to compare their experiences in the redesigned course compared to classes using traditional texts. Similarly, pre- and post-course surveys will quantify faculty use of, and any problems associated with, the open source textbooks. Faculty will also be asked to provide detailed qualitative critiques of the new ancillary materials adopted/created for each course. An optional discussion forum on D2L will also be devised to elicit additional qualitative feedback from students with regard to ease of material access and use -- including text design, quality and readability, and appropriateness of ancillary materials. All qualitative and quantitative data will be compiled, analyzed and presented in a mid-project report and final project report.

1.5 TIMELINE

May 2017 - August 2017

- Attend Grant Kick-off meeting
- Grant team members participate in training with OpenStax staff, attend webinar(s) hosted by USG staff on the use of Galileo Open Learning Materials website, and view archived web events offered by adaptive and authoring software companies
- Identify open source text and accompanying resources (e.g., short films, web-based resources, interactive exercises, etc.)
- Identify topics/concepts that require adaptation and creation of supplemental materials
- Assess course learning objectives (CLOs) with reference to new text adoption and resources
- Create 50% of BIOL2121K and BIOL2122K ancillary materials, screencasts, and multimedia instructional resources
- Design 50% of BIOL 2121K and BIOL2122K laboratory experiments and schedule to parallel OpenStax textbook
- Conduct workshop to train new part-time faculty and new full-time faculty in the use of selected open source materials

August 2017 - December 2017

- Create remaining 50% BIOL 2121K and BIOL 2122K instructional materials for lecture and laboratory components of the courses
- Create D2L master course shell for all sections and include CLOs, open source textbook and resource materials, and surveys and discussion
- Develop pre and post-course surveys for students and methodology for delivery and analytics
- Conduct fall semester courses with open source text, ancillary materials, surveys, and D2L discussion

January 2018 - May 2018

- Analyze Fall 2017 data
- Revise surveys, D2L Master course and CLO's, if necessary
- Conduct spring semester courses with open source text, ancillary materials, surveys, and D2L discussion
- Compile and analyze Spring 2018 data at the conclusion of the semester
- Upload newly created course materials into the college's Learning Management System (D2L), to MERLOT II, OpenStax CNS, and Galileo Open Learning Materials repository for dissemination and delivery to division faculty and students

- Generate and submit final report summarizing study findings

1.6 BUDGET

We are requesting funding according to the **Large-Scale Transformation** category for department-wide adoption of OER textbook for multiple courses and sections of BIOL 2121K and BIOL 2122K with enrollments of 500 students or more per academic year. The total amount of funding requested to support this project is: **\$22,826**

Release Time for Faculty - \$20,000 total;

- Carol Hoban, Assistant Professor and Principal Investigator: \$5000
- Sharryse Henderson, Professor of Biology and Co-PI: \$5000
- Merry Clark, Associate Professor of Biology: \$5000
- Kimberly Subacz, Instructor of Biology: \$5000

Technology Support - \$2026 total;

- (2) iPad Pro 12.9 inch with 128 GB for recording multimedia screencasts - \$899 each
- (2) Apple Pencil for iPad Pro - \$99 each
- Adaptive and authoring software license - \$30

Travel to Grant Kick-Off Meeting - \$800 total;

- Carol Hoban, Assistant Professor of Biology and Principal Investigator: \$400
- Kimberly Subacz, Instructor of Biology: \$400

1.7 SUSTAINABILITY PLAN

Anatomy and Physiology I (2121K) and II (2122K) will always be offered at GHC, as they are required for nursing majors, dental hygiene majors and numerous other allied health majors. Any course materials generated by funding from this grant will be made freely available under the Creative Commons license for the public to access and use. Course materials will be reviewed annually and any needed updates will be made. To ensure sustainability, links to online resources will be checked for availability and updated as needed. In addition, we will contribute to the quality of the OpenStax project by continuing to monitor and report any and all errors found in the OpenStax Anatomy and Physiology textbook to the editor-in-chief (David Harris). Once the transformation of BIOL 2121K and BIOL 2122K is complete, we will explore the possibility of expanding some of the successful changes to other biology courses. Furthermore, we view the development of an online course format for Anatomy & Physiology as a long-term commitment to the success of students at GHC and expect that this transformation will ultimately have a positive impact on students enrolled in BIOL 2121K and BIOL 2122K. Team members will review and update all generated course materials in the master course templates three times a year (August, January, and May) to ensure they comply with the internationally recognized Quality Matters (QM) standards. This maintenance process is vitally important to ensure the most up-to-date and relevant materials are available to faculty and students.

1.8 REFERENCES & ATTACHMENTS

1. United States Public Interest Research Group. 2014. Available at:
<http://www.uspirg.org/sites/pirg/files/reports/NATIONAL%20Fixing%20Broken%20Textbooks%20Report1.pdf>
2. Florida Distance Learning Consortium. September, 2011. Florida Student Textbook Survey. Tallahassee, FL. Available at:
<http://www.openaccesstextbooks.org/projectInfo.html>
3. Bureau of Labor Statistics. 2015. Available at:
<http://www.bls.gov/news.release/cpi.htm>
4. Everard, A. and St. Pierre, K. A Case for Student Adoption of Open Textbooks. Journal of the Academy of Business Education. 2014, 66-76.
5. United States Census Bureau – American Community Survey. 2015. Available at:
https://factfinder.census.gov/bkmk/navigation/1.0/en/d_dataset:ACS_15_5_YR/d_product_type:DATA_PROFILE/
6. Georgia Highlands College Fact Book: Academic Year 2015-2016. Available at:
<https://sites.highlands.edu/paar/wp-content/uploads/sites/9/2017/03/201516factbook.pdf>
7. B.L. Lindshield and K. Adhikari, 2013, Online and Campus College Students Like Using an Open Educational Resource Instead of a Traditional Textbook MERLOT Journal of Online Learning and Teaching, 9(1), 26 – 38.