

Summer 2017

Foundations of Biology (GHC)

Tom Harnden

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Authors

Tom Harnden, Sharryse Henderson, Andrew Dawson, Jason Christian, Greg Ford, and Christin Collins

Grants Collection

Georgia Highlands College



UNIVERSITY SYSTEM
OF GEORGIA

Thomas Harnden, Sharryse Henderson, Andrew Dawson,
Jason Christian, Greg Ford, Christin Collins

Foundations of Biology





Grants Collection

Affordable Learning Georgia Grants Collections are intended to provide faculty with the frameworks to quickly implement or revise the same materials as a Textbook Transformation Grants team, along with the aims and lessons learned from project teams during the implementation process.

Each collection contains the following materials:

- **Linked Syllabus**
 - The syllabus should provide the framework for both direct implementation of the grant team's selected and created materials and the adaptation/transformation of these materials.
- **Initial Proposal**
 - The initial proposal describes the grant project's aims in detail.
- **Final Report**
 - The final report describes the outcomes of the project and any lessons learned.



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Initial Proposal

Application Details

Manage Application: ALG Textbook Transformation Grants Round Five

Award Cycle: Round 5

Internal Submission Deadline: Tuesday, December 15, 2015

Application Title: 219

Submitter First Name: Renva

Submitter Last Name: Watterson

Submitter Title: Vice President of Academic Affairs

Submitter Email Address: rwatters@highlands.edu

Submitter Phone Number: 706-802-5814

Submitter Campus Role: Provost / Academic Affairs Office

Applicant First Name: Thomas

Applicant Last Name: Harnden

Applicant Email Address: tharnden@highlands.edu

Applicant Phone Number: 678-872-8070

Primary Appointment Title: Professor of Biology

Institution Name(s): Georgia Highlands College

Team Members (Name, Title, Department, Institutions if different, and email address for each. Include the applicant in this list.):

Thomas Harnden, Professor of Biology, Division of Natural Science and Physical Education, Georgia Highlands College, tharnden@highlands.edu

Andrew Dawson, Associate Professor of Biology, Division of Natural Science and Physical Education, Georgia Highlands College, adawson@highlands.edu

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

Jason Christian, Science Laboratory Coordinator, Division of Natural Science and Physical Education, Georgia Highlands College, jachrist@highlands.edu

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

Amanda West, Research Assistant, Office of Strategic Planning, Assessment, and Accreditation, Georgia Highlands College, awest@highlands.edu

Other supporting offices/divisions/faculty/staff: 10 science faculty members from among the Division of Natural Science and Physical Education, the Administrative Assistant for the Division of Natural Science and Physical Education

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

Greg Ford, Ph.D. Dean, Division of Natural Science and Physical Education, Georgia Highlands College, gford@highlands.edu

Proposal Title: 219

Course Names, Course Numbers, and Semesters Offered:

Introduction to Biology, BIOL 1010, offered fall, spring, and summer semesters of each academic year

General Zoology, BIOL 2154, offered fall, spring, and summer semesters of each academic year

These two courses constitute an AREA D science sequence required for all non-science majors graduating at Georgia Highlands College

Final Semester of Instruction (This is your final semester of the project): Spring 2017

Average Number of Students per Course Section: 24

Number of Course Sections Affected by Implementation in Academic Year: 30

Total Number of Students Affected by Implementation in Academic Year: 720

List the original course materials for students (including title, whether optional or required, & cost for each item): Currently REQUIRED textbook: Campbell Biology: Concepts and Connections (w/MasteringBiology Access Code) by Reece et al.; 8th edition; ISBN: 9780321885173. Current GHC Bookstore Price: \$230
Currently REQUIRED lab manual: Biology Laboratory Manual by Sylvia Mader; 14th edition; ISBN: 9780077479718. Current GHC Bookstore Price: \$131

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

Requested Amount of Funding: \$30,000

Original per Student Cost: \$361

Post-Proposal Projected Student Cost: \$0

Projected Per Student Savings: Per individual student \$361 (100%)

Plan for Hosting Materials: LibGuides

Project Goals:

The cost of college textbooks has risen over 1000% in the last 37 years with only five publishers currently controlling 85% of the market (NBC News, 2015). The cost of these materials has risen three times more than the rate of since 1978 - far outpacing medical expenses and home prices (Bureau of Labor Statistics 2015). Such figures have prompted the inclusion of textbook provisions in two acts to the US Congress: the Higher Education Opportunity Act in 2008 and the Affordable College Textbook Act in 2013 and 2015 (Scholarly Publishing and Academic Resources Coalition, 2015). Exorbitantly high textbook prices have also negatively impacted various aspects of college enrollment as documented in 2014 by the U.S. Public Interest Group report: *Fixing the Broken Textbook Market* (U.S. Public Interest Research Group, 2014). 65% of students surveyed by this group chose not to purchase a textbook for at least one class even though 94% of them believed this choice would harm their grade. Moreover, nearly half the students stated that textbook prices directly impacted their decision regarding the number and type of courses in which they enrolled. There is a great need to remove the barriers that students face in pursuing higher education particularly in the STEM courses.

How this problem impacts northwest Georgia college students. Socioeconomic status is a major indicator in the successful attainment of postsecondary education (National Center for Education Statistics, 2015). This statement does not bode well for Northwest Georgia, which is characterized by a large number of families (14.4%) living below poverty level (U.S. Department of Commerce – American Community Survey, 2014). Even before they can dream of college, it has also been well-documented that K-12 students -- specifically in northwest Georgia -- have lower access to books than students in other parts of the state due to local school system budget cuts (The Atlantic, 2014; Georgia Budget and Policy Institute, 2013, 2014; Atlanta Journal and Constitution, 2013; Ledger-Inquirer, 2015). With the above in mind, participation by Georgia Highlands College (GHC) in ALG will make post-secondary education more affordable and accessible to economically disadvantaged individuals who might not otherwise consider pursuit of a college education. Lower textbook prices will also contribute to student retention, progression and graduation, which aligns with GHC's mission to serve northwest Georgia students. Our goal is to redesign, and provide Open Educational Resources (OERs) for BIOL 1010 (Introduction to Biology) and BIOL 2154 (General Zoology), which are offered every semester (fall, spring, summer) of the academic year and use the same textbook and lab manual. This two-course sequence is one of several options students can choose to complete the AREA D science requirements for all non-major Transfer programs. Historically,

the majority of students enrolled at GHC have taken the 1010/2154 sequence over other options. Thus, the redesign of these courses and the inclusion of OERs will impact about 10% of our student population every academic year. This is important because the combined incidence of low final grades and withdrawals (drop/fail/withdraw or DWF rates) in BIOL 1010 and BIOL 2154 is high (23% in spring 2015).

Our project goals are to:

- Identify and adopt appropriate Open Educational Resources (OER) to best compliment student learning outcomes for BIOL 1010 and BIOL 2154.
- Generate new OERs, if appropriate OERs are not currently available, and make them freely-accessible using LibGuides (see below)
- Redesign all course materials (including course objectives and student learning outcomes) for BIOL 1010 and BIOL 2154 using the OER framework and available OER ancillary materials (images, tables, test banks, etc.).
- 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.
- Improve student grades in BIOL 1010 and 2154 and reduce drop/fail/withdraw rates for BIOL 1010

Statement of Transformation:

Georgia Highlands College (GHC) is a limited four-year college in the University System of Georgia that serves more than 5300 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 campuses, which provides the opportunity to develop, implement and compare new teaching materials and pedagogies across campuses. Projects initiated on one campus can and will be replicated and expanded across campuses to prove scalability. Furthermore, we will be implementing this project in courses taught in all formats including face-to-face, online, and hybrid formats.

Mean annual income in the geographic areas served by GHC is about \$60,825 (U.S. Department of Commerce – American Community Survey, 2014). According to the 2014-2015 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 fulltime jobs in addition to undertaking a full course load (at least 12 hours). Currently, the cost of the textbook and lab manual for the 1010/2154 course sequence is about \$360 through our campus bookstore. Adoption of open source materials will provide every student access to all course materials at no charge. We expect this to reduce the incidence of DWFs in future OER-supplied BIOL 1010/2154 courses compared to past BIOL 1010/2154 courses that used traditional texts.

All course materials will be stored within a master course on GHC's learning management system, currently Brightspace by D2L (<http://www.brightspace.com>), as well as in the LibGuides by SpringShare (<http://springshare.com/libguides>) – the content management

system used by thousands of libraries worldwide. Consequently, any student enrolled in BIOL 1010 or 2154 and any faculty teaching at GHC, within the USG, or across the country will have 24-hour-access to our OERs and their ancillary materials.

Transformation Action Plan:

Tom Harnden: Principle Investigator; will oversee project from start to finish including: submission of ALG transformation proposal, identification and adoption of appropriate OERs, development of related course materials; administration of surveys and data collection, and creation of project final report.

Andrew Dawson: Curriculum expert; will work with science and library faculty to identify, review, select, and adopt appropriate OERs for both BIOL 1010 and BIOL 2154. Develop summer workshop to train teaching faculty in use of OERs and ancillary materials.

Sharryse Henderson: Curriculum expert; will develop master syllabi and instructional materials necessary for BIOL 1010 course transformation. Will also create master course for BIOL 1010 within Desire2Learn.

Jason Christian: Curriculum expert; will develop master syllabi and instructional materials necessary for BIOL 2154 course transformation. Will also create master course for BIOL 2154 within Desire2Learn.

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.

Amanda West: Research assistant; will provide past DFW data for BIOL 1010 and BIOL 2154 courses, compile/analyze data from student and faculty surveys, and provide DFW rates in transformed BIOL 1010 and BIOL 2154 courses.

10 Science Faculty: will take part in summer training workshop; teach BIOL 1010 or 2154 sections using adopted and/or created OERs; participate in faculty surveys.

Quantitative & Qualitative Measures: Both quantitative and qualitative methods will be used to measure and gauge the success of our transition from the use of traditionally-available to OER materials. Quantitative 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. Similarly, pre- and post-course surveys will quantify faculty use of, and any problems associated with, the open source textbooks and their ancillary materials. Faculty will also be asked to provide detailed qualitative critiques of the new materials adopted for each course. A mandatory 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. Students will also be asked to compare their experiences in the redesigned course compared to classes using traditional texts. Data on DFW rates from the past three years in BIOL 1010 and BIOL 2154 (when traditional texts were used) will be compared to DFW rates for the courses that use the redesigned OER materials. All data will be compiled, analyzed and presented in a project report.

Timeline:

January 11th 2016 – May 31st 2016

- Submit Service Level Agreement (SLA) to University System Office
- Invoice USG
- Identify open source text and accompanying resources (e.g., short films, web-based resources, interactive exercises, etc.)
- Develop pre- and post-course surveys for faculty and students
- Develop question guide for D2L discussion (see above)

June 1st 2016 – August 1st 2016

- Assess course learning objectives (CLOs) with reference to new text adoption and resources
- Finalize surveys and methodology to analyze surveys

- Finalize question guide for D2L discussion
- Create D2L master course shell for all sections and include CLOs, open source textbook and resource materials, and surveys and discussion
- Conduct workshops to train teaching faculty in the use of selected open source materials

August 15th 2016 – November 30th 2016

- Conduct fall semester course with open source text, surveys, and D2L discussion

December 1st 2016 – January 15th 2017

- Compile and analyze Fall 2016 data
- Revise surveys and discussion, if necessary
- Revise D2L master course shell, if necessary

January 16th 2017 – April 30th 2017

- Conduct spring semester course with revised open source text, surveys, and D2L discussion

May 1st 2017 – May 30th 2017

- Compile and analyze Spring 2017 data
- Compare Fall 2016 data with Spring 2017 data
- Generate final report summarizing study findings

Budget:

We are requesting the second level of funding appropriate for multiple-sections /courses/department-wide funding (\$30,000) to be used as follows:

Release Time for Project Team Members: \$20,000

Dr. Tom Harnden, Professor and Principal Investigator: \$5000

Sharryse Henderson, Associate Professor: \$5000

Andrew Dawson, Associate Professor: \$5000

Jason Christian, Laboratory Coordinator: \$5000

Library support: \$3600

Christin Collins, Assistant Librarian for Public Services

Office of Institutional Research support: \$3600

Amanda West, Research Assistant

Summer Workshop to Train Full-time and Part-time Teaching Faculty: \$2000

Release Time for Full-Time Faculty

Dr. Mark Knauss: \$200

Dr. Merry Clark: \$200

Dr. Jackie Belwood: \$200

Lisa Branson: \$200

Devan Rediger: \$200

Release Time for Part-time Faculty

Banhi Nandi: \$200

Clint Helms: \$200

Dr. Robert Young: \$200

Shanika Wells: \$200

Kimberly Subacz: \$200

Travel for Team members to attend Grant Kick-Off Meeting: \$800

Dr. Tom Harnden, Professor and Principal Investigator: \$400

Sharryse Henderson, Associate Professor: \$400

Sustainability Plan:

To ensure sustainability, we will review and update all generated course materials in the master course templates three times a year (August, January, and May). We will also regularly review external links to online materials to ensure they are all still active. Outdated materials/information will be replaced and appropriate new material added, as needed. This maintenance process is vitally important to ensure the most up-to-date offerings. Once this project is completed, we will use the templates and methodologies created to redesign several other courses that satisfy the Area D science sequence requirement -- specifically, BIOL 2153 (General Botany), BIOL 2152 (Introduction to Field Studies), and BIOL 2190 (Principles of Nutrition).



1.1 REFERENCES & ATTACHMENTS

Atlanta Journal and Constitution (MyAJC, 2013): Cobb Math Teachers Fret Over Lack of Textbooks
<http://www.myajc.com/news/news/local-education/cobb-math-teachers-fret-over-lack-of-textbooks/nX8Bc/>

Bureau of Labor Statistics (BLS, 2015): Consumer Price Index News Release
<http://www.bls.gov/news.release/cpi.htm>

Georgia Budget and Policy Institute (GBPI, 2013): Cutting Class to Make Ends Meet
<http://gbpi.org/wp-content/uploads/2013/11/Cutting-Class-to-Make-Ends-Meet-Final.pdf>

Georgia Budget and Policy Institute (GBPI, 2014): Cutting Class to Make Ends Meet
<http://gbpi.org/wp-content/uploads/2014/10/Cutting-Class-to-Make-Ends-Meet-Report-Final2.pdf>

Georgia Department of Education School System Financial Reports (2015)
Data compiled for the following Northwest GA Counties: Bartow, Carroll, Chattooga, Cobb, Douglas, Floyd, Gordon, Paulding, and Polk.

https://app3.doe.k12.ga.us/ows-bin/owa/fin_pack_revenue.entry_form

Georgia Highlands College Fact Book: Academic Year 2014-2015
<https://www.highlands.edu/inc/files/userfiles/31-cbac5ca5b0647bc-2014-2015GHCFactBook-DRAFTwithhyperlinks.pdf>

Ledge-Inquirer (2015): In Heated Emails, MCSD Board Debates Whether District Has Textbook Shortage
<http://www.ledger-enquirer.com/news/local/article29446093.html>

Ledge-Inquirer (2015): Textbooks: Center of Debate but No Longer Center of Classroom
<http://www.ledger-enquirer.com/news/local/article29456227.html>

NBC News (2015): College Textbook Prices Have Risen 1041% since 1977
<http://www.nbcnews.com/feature/freshman-year/college-textbook-prices-have-risen-812-percent-1978-n399926>

National Center for Education Statistics (NCES, 2015): Postsecondary Attainment: Differences by Socioeconomic Status
http://nces.ed.gov/programs/coe/indicator_tva.asp

Scholarly Publishing and Academic Resources Coalition (SPARC, 2015): Support the Affordable College Textbook Act
<http://www.sparc.arl.org/advocacy/national/act>

THE ATLANTIC (2014): Why Poor Schools Can't Win at Standardized Testing
<http://www.theatlantic.com/education/archive/2014/07/why-poor-schools-cant-win-at-standardized-testing/374287/>

U.S. Department of Commerce American Community Survey (2014)
Data from the following Northwest GA Counties: Bartow, Carroll, Chattooga, Cobb, Douglas, Floyd, Gordon, Paulding, and Polk.
<https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2014/>

U.S. Public Interest Research Group (USPIRG, 2014): Fixing the Broken Textbook Market
<http://www.uspirg.org/sites/pirg/files/reports/NATIONAL%20Fixing%20Broken%20Textbooks%20Report1.pdf>

December 15, 2015

To The ALG Transformation Grant Administrator,

I am Dr. Renva Watterson, Vice President for Academic Affairs at Georgia Highlands College. I am writing in support of Tom Harnden's Affordable Learning Georgia Textbook Transformation Grants entitled "ALG Textbook Transformation Project to adopt and/or create an Open Educational Resource for an Area D science sequence, Introductory Biology (BIOL 1010) and General Zoology (BIOL 2154), at Georgia Highlands College".

Georgia Highlands College (GHC) is a limited four-year college within the University System of Georgia that serves Northwest Georgia and Northeast Alabama. Specifically, BIOL 1010 and BIOL 2154 constitute a science sequence that satisfies AREA D core curriculum science requirements in the University System and the Technical College System of Georgia. GHC has five campuses that provide instruction which allows for a unique opportunity to develop and implement new teaching materials and pedagogy for comparison of student data across campuses. This multi-site configuration also provides an opportunity to replicate and expand projects across campuses to prove scalability.

Tom Harnden, Ed.D. is a Professor of Biology in the Division of Natural Science and Physical Education. Tom, along with the team he has assembled, is well suited to full-fill the goals of this grant. The division has already worked to transform courses and has reported significant savings for our students and therefore, with the support of my office, this program will be sustained and expanded sequentially.

Sincerely,

Dr. Renva Watterson,
Vice President of Academic Affairs
Georgia Highlands College

[Proposal No.] 1 [Publish Date]

Affordable Learning Georgia Textbook Transformation Grants
Rounds Three, Four, and Five
For Implementations Beginning Summer Semester 2015
Running Through Spring Semester 2017

Proposal Form and Narrative

Submitter Name Renna Watterson, Ph.D. Submitter Title Vice President of Academic Affairs
Submitter Email rwatters@highlands.edu Submitter Phone Number 706-802-5814
Submitter Campus Role Vice President of Academic Affairs Applicant Name Thomas Harnden, Ph.D.
Applicant Email tharnden@highlands.edu Applicant Phone Number 678-872-8070
Primary Appointment Title Professor of Biology Institution Name(s) Georgia Highlands College
Team Members
Andrew Dawson, Associate Professor of Biology, Division of Natural Science and Physical Education,
Georgia Highlands College, adawson@highlands.edu
Sharryse Henderson, Associate Professor of Biology, Division of Natural Science and Physical Education,
Georgia Highlands College, shenders@highlands.edu
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Georgia Highlands College, jachrist@highlands.edu

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

Other supporting offices/divisions/faculty/staff: GHC Office of Institutional Research, and 10 additional science faculty from the Division of Natural Sciences and Physical Education. Sponsor, Title, Department, Institution Greg Ford, Ph.D., Dean, Division of Natural Science and Physical Education, Georgia Highlands College, gford@highlands.edu
Proposal Title ALG Textbook Transformation Project to adopt and/or create an Open Educational Resource for an Area D science sequence, Introductory Biology (BIOL 1010) and General Zoology (BIOL 2154), at Georgia Highlands College
Course Names, Course Numbers and Semesters Offered BIOL 1010 - Introduction to Biology and BIOL 2154 - General Zoology. Both courses are intended for non-science majors and satisfy the AREA D science sequence requirements. Both are offered in fall, spring, and summer semesters. Project will Spring 2016 and conclude Spring 2017.
Final Semester of Instruction Spring 2017
Average Number of Students Per Course Section 24
Number of Course Sections Affected by Implementation in Academic Year 30
Total Number of Students Affected by Implementation in Academic Year 720
Award Category (pick one)? No-Cost-to-Students Learning Materials
? OpenStax Textbooks
? Specific Top 50 Lower Division Courses List the original course materials for students (including title, whether optional or required, & cost per item)
CURRENTLY REQUIRED TEXTBOOK AND LAB MANUAL:
Campbell Biology: Concepts and Connections (w/MasteringBiology ACCESS CODE) by Reece et al.; 8th edition; ISBN: 9780321885173. Current GHC Bookstore Price: \$230.
Biology Laboratory Manual by Sylvia Mader; 14th edition ISBN: 9780077479718. Current GHC Bookstore Price: \$131. Current Per Student Cost \$361
Post-Proposal Projected Per Student Cost \$0
Projected Per Student Savings Per individual student: \$361 (100%)

All students combined per academic year: \$259,920
Plan for Hosting Materials?
OpenStax CNX
? D2L
? LibGuides
? Other _____

Note: Materials created in a grant project, excluding instructor-only tests and quizzes, must be made freely-accessible to the public, preferably under a Creative Commons open license.
Requested Amount of Funding \$30,000

NARRATIVE

1.1 PROJECT GOALS

The cost of college textbooks has risen over 1000% in the last 37 years with only five publishers currently controlling 85% of the market (NBC News, 2015). The cost of these materials has risen three times more than the rate of since

1978 - far outpacing medical expenses and home prices (Bureau of Labor Statistics 2015). Such figures have prompted the inclusion of textbook provisions in two acts to the US Congress: the Higher Education Opportunity Act in 2008 and the Affordable College Textbook Act in 2013 and 2015 (Scholarly Publishing and Academic Resources Coalition, 2015). Exorbitantly high textbook prices have also negatively impacted various aspects of college enrollment as documented in 2014 by the U.S. Public Interest Group report: Fixing the Broken Textbook Market (U.S. Public Interest Research Group, 2014). 65% of students surveyed by this group chose not to purchase a textbook for at least one class even though 94% of them believed this choice would harm their grade. Moreover, nearly half the students stated that textbook prices directly impacted their decision regarding the number and type of courses in which they enrolled. There is a great need to remove the barriers that students face in pursuing higher education particularly in the STEM courses.

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Our project goals are to:

- * Identify and adopt appropriate Open Educational Resources (OER) to best compliment student learning outcomes for BIOL 1010 and BIOL 2154.
- * Generate new OERs, if appropriate OERs are not currently available, and make them freely-accessible using LibGuides (see below)
- * Redesign all course materials (including course objectives and student learning outcomes) for BIOL 1010 and BIOL 2154 using the OER framework and available OER ancillary materials (images, tables, test banks, etc.).
- * 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.
- * Improve student grades in BIOL 1010 and 2154 and reduce drop/fail/withdraw rates for BIOL 1010

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 5300 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 campuses, which provides the opportunity to develop, implement and compare new teaching materials and pedagogies across campuses. Projects initiated on one campus can and will be replicated and expanded across

campuses to prove scalability. Furthermore, we will be implementing this project in courses taught in all formats including face-to-face, online, and hybrid formats.

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1.3 TRANSFORMATION ACTION PLAN

* Tom Harnden: Principle Investigator; will oversee project from start to finish including: submission of ALG transformation proposal, identification and adoption of appropriate OERs, development of related course materials; administration of surveys and data collection, and creation of project final report.

* Andrew Dawson: Curriculum expert; will work with science and library faculty to identify, review, select, and adopt appropriate OERs for both BIOL 1010 and BIOL 2154. Develop summer workshop to train teaching faculty in use of OERs and ancillary materials.

* Sharryse Henderson: Curriculum expert; will develop master syllabi and instructional materials necessary for BIOL 1010 course transformation. Will also create master course for BIOL 1010 within Desire2Learn.

* Jason Christian: Curriculum expert; will develop master syllabi and instructional materials necessary for BIOL 2154 course transformation. Will also create master course for BIOL 2154 within Desire2Learn.

* 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.

* Amanda West: Research assistant; will provide past DFW data for BIOL 1010 and BIOL 2154 courses, compile/analyze data from student and faculty surveys, and provide DFW rates in transformed BIOL 1010 and BIOL 2154 courses.

* 10 Science Faculty: will take part in summer training workshop; teach BIOL 1010 or 2154 sections using adopted and/or created OERs; participate in faculty surveys.

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 traditionally-available to OER materials. Quantitative 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. Similarly, pre- and post-course surveys will quantify faculty use of, and any problems associated with, the open source textbooks and their ancillary materials. Faculty will also be asked to provide detailed qualitative critiques of the new materials adopted for each course. A mandatory 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. Students will also be asked to compare their experiences in

the redesigned course compared to classes using traditional texts. Data on DFW rates from the past three years in BIOL 1010 and BIOL 2154 (when traditional texts were used) will be compared to DFW rates for the courses that use the redesigned OER materials. All data will be compiled, analyzed and presented in a project report.

1.5 TIMELINE

January 11th 2016 ♦ May 31st 2016* Submit Service Level Agreement (SLA) to University System Office

* Invoice USG

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

* Develop pre- and post-course surveys for faculty and students

* Develop question guide for D2L discussion (see above) June 1st 2016 ♦ August

1st 2016* Assess course learning objectives (CLOs) with reference to new text adoption and resources

* Finalize surveys and methodology to analyze surveys

* Finalize question guide for D2L discussion

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

* Conduct workshops to train teaching faculty in the use of selected open source materials August 15th 2016 ♦ November 30th 2016* Conduct fall semester course

with open source text, surveys, and D2L discussion December 1st 2016 ♦

January 15th 2017* Compile and analyze Fall 2016 data

* Revise surveys and discussion, if necessary

* Revise D2L master course shell, if necessary January 16th 2017 ♦ April 30th

2017 * Conduct spring semester course with revised open source text, surveys, and D2L discussion May 1st 2017 ♦

May 30th 2017* Compile and analyze Spring 2017 data

* Compare Fall 2016 data with Spring 2017 data

* Generate final report summarizing study findings

1.6 BUDGET

We are requesting the second level of funding appropriate for multiple-sections /courses/department-wide funding (\$30,000) to be used as follows:

Release Time for Project Team Members: \$20,000

Dr. Tom Harnden, Professor and Principal Investigator: \$5000

Sharryse Henderson, Associate Professor: \$5000

Andrew Dawson, Associate Professor: \$5000

Jason Christian, Laboratory Coordinator: \$5000

Library support: \$3600

Christin Collins, Assistant Librarian for Public Services

Office of Institutional Research support: \$3600

Amanda West, Research Assistant

Summer Workshop to Train Full-time and Part-time Teaching Faculty: \$2000

Release Time for Full-Time Faculty

Dr. Mark Knauss: \$200

Dr. Merry Clark: \$200

Dr. Jackie Belwood: \$200

Lisa Branson: \$200

Devan Rediger: \$200

Release Time for Part-time Faculty

Banhi Nandi: \$200

Clint Helms: \$200

Dr. Robert Young: \$200

Shanika Wells: \$200

Kimberly Subacz: \$200

Travel for Team members to attend Grant Kick-Off Meeting: \$800

Dr. Tom Harnden, Professor and Principal Investigator: \$400

Sharryse Henderson, Associate Professor: \$400

1.7 SUSTAINABILITY PLAN

To ensure sustainability, we will review and update all generated course materials in the master course templates three times a year (August, January, and May). We will also regularly review external links to online materials to ensure they are all still active. Outdated materials/information will be replaced and appropriate new material added, as needed. This maintenance process is vitally important to ensure the most up-to-date offerings. Once this project is completed, we will use the templates and methodologies created to redesign several other courses that satisfy the Area D science sequence requirement -- specifically, BIOL 2153 (General Botany), BIOL 2152 (Introduction to Field Studies), and BIOL 2190 (Principles of Nutrition).

1.8 REFERENCES & ATTACHMENTS

Atlanta Journal and Constitution (MyAJC, 2013): Cobb Math Teachers Fret Over Lack of Textbooks

<http://www.myajc.com/news/news/local-education/cobb-math-teachers-fret-over-lack-of-textbooks/nX8Bc/>

Bureau of Labor Statistics (BLS, 2015): Consumer Price Index News Release

<http://www.bls.gov/news.release/cpi.htm>

Georgia Budget and Policy Institute (GBPI, 2013): Cutting Class to Make Ends Meet

<http://gbpi.org/wp-content/uploads/2013/11/Cutting-Class-to-Make-Ends-Meet-Final.pdf>

Georgia Budget and Policy Institute (GBPI, 2014): Cutting Class to Make Ends Meet

<http://gbpi.org/wp-content/uploads/2014/10/Cutting-Class-to-Make-Ends-Meet-Report-Final2.pdf>

Georgia Department of Education ♦ School System Financial Reports (2015)
Data compiled for the following Northwest GA Counties: Bartow, Carroll, Chattooga, Cobb, Douglas, Floyd, Gordon, Paulding, and Polk.

https://app3.doe.k12.ga.us/ows-bin/owa/fin_pack_revenue.entry_form

Georgia Highlands College Fact Book: Academic Year 2014-2015

<https://www.highlands.edu/inc/files/userfiles/31-cbac5ca5b0647bc-2014-2015GHCFactBook-DRAFTwithhyperlinks.pdf>

Ledge-Inquirer (2015): In Heated Emails, MCSD Board Debates Whether District Has Textbook Shortage

<http://www.ledger-enquirer.com/news/local/article29446093.html>

Ledge-Inquirer (2015): Textbooks: Center of Debate but No Longer Center of Classroom

<http://www.ledger-enquirer.com/news/local/article29456227.html>

NBC News (2015): College Textbook Prices Have Risen 1041% since 1977

<http://www.nbcnews.com/feature/freshman-year/college-textbook-prices-have-risen-812-percent-1978-n399926>

National Center for Education Statistics (NCES, 2015): Postsecondary Attainment: Differences by Socioeconomic Status

http://nces.ed.gov/programs/coe/indicator_tva.asp

Scholarly Publishing and Academic Resources Coalition (SPARC, 2015): Support the Affordable College Textbook Act

<http://www.sparc.arl.org/advocacy/national/act>

THE ATLANTIC (2014): Why Poor Schools Can't Win at Standardized Testing

<http://www.theatlantic.com/education/archive/2014/07/why-poor-schools-cant-win-at-standardized-testing/374287/>

U.S. Department of Commerce ♦ American Community Survey (2014)
Data from the following Northwest GA Counties: Bartow, Carroll, Chattooga,
Cobb, Douglas, Floyd, Gordon, Paulding, and Polk.
<https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2014/>

U.S. Public Interest Research Group (USPIRG, 2014): Fixing the Broken Textbook
Market
<http://www.uspirg.org/sites/pirg/files/reports/NATIONAL%20Fixing%20Broken%20Textbooks%20Report1.pdf>

December 15, 2015

To The ALG Transformation Grant Administrator,

I am Dr. Renva Watterson, Vice President for Academic Affairs at Georgia Highlands College. I am writing in support of Tom Harnden's Affordable Learning Georgia Textbook Transformation Grants entitled ♦ALG Textbook Transformation Project to adopt and/or create an Open Educational Resource for an Area D science sequence, Introductory Biology (BIOL 1010) and General Zoology (BIOL 2154), at Georgia Highlands College♦.

Georgia Highlands College (GHC) is a limited four-year college within the University System of Georgia that serves Northwest Georgia and Northeast Alabama. Specifically, BIOL 1010 and BIOL 2154 constitute a science sequence that satisfies AREA D core curriculum science requirements in the University System and the Technical College System of Georgia. GHC has five campuses that provide instruction which allows for a unique opportunity to develop and implement new teaching materials and pedagogy for comparison of student data across campuses. This multi-site configuration also provides an opportunity to replicate and expand projects across campuses to prove scalability.

Tom Harnden, Ed.D. is a Professor of Biology in the Division of Natural Science and Physical Education. Tom, along with the team he has assembled, is well suited to full-fill the goals of this grant. The division has already worked to transform courses and has reported significant savings for our students and therefore, with the support of my office, this program will be sustained and expanded sequentially.

Sincerely,

Dr. Renva Watterson,
Vice President of Academic Affairs
Georgia Highlands College

[Proposal No.] 9 [Publish Date]

Syllabus

GEORGIA HIGHLANDS COLLEGE

INTRODUCTION TO BIOLOGY

BIOLOGY 1010K



COURSE INFORMATION:

SEMESTER/YEAR:	Fall 2016
LECTURE DAY/TIME:	Online
LAB DAY/TIME:	Online
CREDIT HOURS:	4 credit hours

INSTRUCTOR INFORMATION:

NAME:	Dr. Tom Harnden
TITLE:	Professor of Biology
OFFICE PHONE:	
EMAIL:	tharnden@highlands.edu
OFFICE LOCATION:	Virtual using web-conferencing or in the lab (E-119) on the Marietta site
OFFICE HOURS:	7am until 8am Mondays and Wednesdays 9:30am until 12:30pm Wednesdays
FACULTY WEBPAGE	http://www2.highlands.edu/site/faculty-tom-harnden

COURSE DESCRIPTION:

Biology 1010K: Introduction to Biology

(3-3-4) Prerequisites: Satisfactory placement scores in

ENGL 0989 and MATH 0987

OR ENGL 0989 and MATH 0989

BIOL 1010K constitutes the first required core course for a seven to eight semester-hour laboratory science sequence. Topics to be covered include the chemical basis of cells, general cell biology and genetics, respiration and photosynthesis, patterns of inheritance, natural selection and speciation and an introduction to the major kingdoms of life. The laboratory component provides hands-on experience in analysis and evaluation of biological processes. This course provides a foundation for the non-science major in the skills of inquiry, data collection, and critical thinking while introducing the student to the basic concepts of the life sciences. NOTE: This course is a prerequisite to more specific courses designed to complete a science sequence. Credit for this course is NOT granted for students with credit in BIOL 2107K or BIOL 2108K. **Laboratory Fee Required. [Georgia Highlands Catalog 2016-2017]**

STUDENT LEARNING OUTCOMES FOR SCIENCE:

Georgia Highlands College Educational Effectiveness Goal for Science: Students will demonstrate knowledge of the fundamental concepts of at least one scientific discipline, and an understanding of the interplay between theory, experimentation, and observation undergirding those concepts.

Georgia Highlands College Student Learning Outcomes for Science: Students will demonstrate knowledge of the fundamental concepts of at least one scientific discipline, and an understanding of the interplay between theory and experimentation and observations undergirding those concepts.

1.	Students will demonstrate competency of one discipline in the sciences in terms of its informational content.
2.	Students will demonstrate competency of one discipline in the sciences in terms of its terminology.
3.	Students will demonstrate competency of one discipline in the sciences in terms of its commonly used units of measurement.
4.	Students will demonstrate the ability to operate basic instrumentation, gather data, analyze data, and generate conclusions in a laboratory or observational setting.
5.	Students will demonstrate the ability to apply discipline content to problem solving.

COURSE OBJECTIVES AND COMPETENCIES FOR BIOL 1010K:

Upon completion of this course, students should be able to:

1.	Describe the properties of life and explain how living things are organized into a hierarchy <ul style="list-style-type: none"> ▪ Discuss the increase in complexity of living organisms ▪ List and describe the various properties that not only help sustain life but also perpetuate it
2.	Summarize the scientific method and explain its importance in scientific inquiry <ul style="list-style-type: none"> ▪ Compare and contrast inductive and deductive reasoning and relate these concepts to scientific inquiry ▪ Identify and describe each step of the scientific method as well as explain various ways of designing experimental conditions ▪ Determine whether or not examples of research is correctly using the scientific method
3.	Explain the fundamental principles of chemistry related to the study of Biology <ul style="list-style-type: none"> ▪ Discuss the increased complexity of the units of matter starting from the atom and its particles working up to complex organic biological compounds ▪ List the subatomic particles and describe how these not only define the uniqueness of an atom but also how they contribute to the chemical and physical properties of an element ▪ Compare and contrast the types of chemical bonding that can occur because of various electron configurations ▪ Describe the properties of water and how these properties are critically necessary for life ▪ Identify the four major types of biological compounds as well as compare and contrast their structures and functions
4.	Describe the basic structures and functions of a cell <ul style="list-style-type: none"> ▪ Summarize the cell theory ▪ Compare and contrast prokaryotic and eukaryotic cell structure ▪ List and describe the structure and function of major cell organelles ▪ Explain the fluid mosaic model of membranes as well as describe the role of the various components of the plasma membranes ▪ Discuss the various types of active and passive movements that are associated with cells
5.	Identify and describe the various metabolic processes used by living things <ul style="list-style-type: none"> ▪ Discuss not only the forms of energy that exist, but also describe how energy can be transferred and transformed ▪ Summarize the process of cell respiration and the production of energy from this process ▪ Summarize the process of photosynthesis and the production of an energy source from this process ▪ Compare and contrast the processes of carbohydrate metabolism, lipid metabolism, and protein metabolism
6.	Explain the various ways in which cells reproduce <ul style="list-style-type: none"> ▪ Compare and contrast the reproduction of bacterial cells, plant cells, and animal cells ▪ List and describe the stages and phases of the animal cell cycle as well as describe any differences that may occur in plant cells ▪ Compare and contrast the processes of mitosis and meiosis ▪ Discuss the possible implications of cells which have issues with cellular mechanisms during cell reproduction

7.	<p>Summarize the processes and patterns of human inheritance as well as describe the regulation of genetic of various genetic processes</p> <ul style="list-style-type: none"> ▪ Describe the structural organization of DNA and how this relates to both inheritance and genetic variability ▪ Define the Mendelian laws of assortment and segregation and discuss how these mechanisms lead to genetic diversity ▪ Apply the principles of inheritance through the use of Punnet squares as well as discuss results in terms of ratios of genotypic and phenotypic expression of dominance and recessiveness. ▪ Discuss in detail the process of gene expression and its regulation ▪ List and describe various processes used in biotechnology
8.	<p>Discuss the concept of evolution as well as the process of speciation</p> <ul style="list-style-type: none"> ▪ Explain the processes of both natural and artificial selection ▪ Describe the concept of speciation and identify an example ▪ List and describe various mechanisms that lead to speciation
9.	<p>Explain the process of phylogenetic classification of organisms as well as how organisms at the highest levels differ structurally and functionally</p> <ul style="list-style-type: none"> ▪ List and describe all the various categories associated with nomenclature of organisms ▪ Differentiate organismal characteristics at the level of both Domain and Kingdom and describe why these characteristics may have occurred ▪ Describe in detail the diversity of organisms among the five Kingdoms as well as within each kingdom
10.	<p>Summarize the various living and non-living factors that make up an ecosystem as well as explain the dynamic interactions that occur within an ecosystem</p> <ul style="list-style-type: none"> ▪ Explain the interrelationship between population size and population density as well as how these may be affected or regulated ▪ Discuss the flow of energy as well as the process of nutrient cycling in an ecosystem ▪ Compare an aquatic biome to a terrestrial biome ▪ Explain the importance of biodiversity in ecosystems as well as describe the importance of preserving ecological diversity
11.	<p>Apply the scientific method to conduct experiments as well as explore various scientific principles</p> <ul style="list-style-type: none"> ▪ Utilize equipment and instruments typical for scientific examination ▪ Explain units of measurement used in science as well as successfully apply these units to record analyze scientific data ▪ Evaluate graphs and tables in order to interpret experimental results ▪ Determine whether or not an experiment and its design and results are valid

LECTURE MATERIAL:

- **TEXT:** OpenStax College. Concepts of Biology. 2013. Rice University. ISBN: 978-1-938168-11-6, Read online or download for FREE at: <https://www.openstaxcollege.org/textbooks/concepts-of-biology>
- **COURSE LIBGUIDE:** <http://getlibraryhelp.highlands.edu/biol1010> (you may have to log into Galileo)
- **D2L:** Course material, grades, and other aspects of the course will be housed in a course management system referred to as Desire2Learn or D2L. Students are responsible for obtaining their username and password. To log into Georgia View D2L, click on the following link: Georgia View D2L. Once you logged into Georgia View D2L you should see a list of links for courses that you are registered for the semester. If you do not see a link for the course you are trying to enter, then contact the registrar's office. If you do see the course link, then click on it and you will be directed to the course main page. Using the email option in D2L, please email me no later than midnight of the third day of classes and indicate that you have read, understand, and comply with the syllabus for this course. If you do not, then you will be considered a no show for the course and will be administratively withdrawn.

LABORATORY

Laboratory Text/Access: Learnsmart Labs for Introduction to Biology (1st edition), ISBN 9780077470852.

Registering for laboratory access: Go to <http://www.mhlearnsmart.com/isbn/0078024196/>

- Click on “Register” when you register for the first time
- Click on “I am a student”
- Be sure to use your GHC email only when registering
- Then enter your registration code aka your access code that you purchased
- If you didn’t purchase a registration or access code you can do so at the GHC bookstore or on the above registration webpage by hitting the button called “Registration” then “Student” which directs you to a page where you can purchase an access code
- You will be asked for a class section code which (note: the letters are case sensitive, enter them exactly as you see them)
- If you registered for CRN **80158**, then your lab class section sign up code is **1450812b**
- If you registered for CRN **80159**, then your lab class section sign up code is **e244e2c5**
- You may be directed back to the login page BUT if not, then go to <http://www.mhlearnsmart.com/isbn/0078024196/> or www.mhhe.com/lslabsbio and log into the lab portion of the class
- When you login you will notice assignments and their **availability**. The lab activities close at a specific time and on a specific date. Students cannot reenter the labs after the deadline and it is suggested that they take notes regarding the material covered during the lab exercise to help them prepare for the lab final exam.
- Also, if you run into issues or problems, then please contact McGraw-Hill technical help by clicking on the “Support Center” link at the bottom of the page and if that doesn’t work you can go to <http://mpss.mhhe.com/> or <http://mpss.mhhe.com/products.php>
- Please do not contact me if you have issues with Learn Smart Labs, I do not have the access ability to help.

TECHNICAL HELP:

- If you have trouble accessing the course or any other technical issues associated with **Georgia View D2L** then please click on the following link and contact Vista technical help: <https://d2lhelp.view.usg.edu/>
- If you have trouble with **Respondus Lockdown Browser with Monitor**, then please click on the following link and contact Respondus technical help: <http://support.respondus.com/support/>
- If you have trouble with **LearnSmart Labs**, then please contact McGraw-Hill technical help by clicking on the “Support Center” link at the bottom of the login page and if that doesn’t work you can go to <http://mpss.mhhe.com/> or <http://mpss.mhhe.com/products.php>
- If you have trouble and need to contact a **specific department at GHC** (e.g. eLearning), then you can click on <http://www.highlands.edu/site/ghc411>

TECHNICAL REQUIREMENTS:

- Students must have access to a browser that enables D2L to be fully functional as well as Respondus
- In order to access D2L and have the Respondus Lock Down Browser work on personal computers/electronic media that computer/electronic device must have the following:
 - Windows: 8, 7, Vista, XP
 - Mac: OS X 10.6 or higher
 - Internet Explorer (Windows) or Safari (Mac) must function properly on the computer
 - Adobe Flash Player
 - Web camera (internal or external) & microphone
 - A broadband internet connection
- If you have any technical issues then contact the specific technical help using the information above

OFFICE HOURS AND SCHEDULING APPOINTMENTS:

Scheduling Appointments: In order to insure that a student see Dr. Harnden during his office hours, a student must log on WASS (Web appointment scheduling system) and set up an appointment. Students may drop in during Dr. Harnden's office hours without an appointment. However, if he has a scheduled appointment, meeting or other obligations, then he may not be free to speak to a student.

NOTE: (1) Students must log in as a Guest not a GHC member! Search using the instructor's last name, (2) Appointments should be made no less than 48 hours before the time and date of that appointment, (3) Make only ONE appointment at a time - any more will be cancelled, (4) Students must give a minimum of 24 hour notice to cancel an appointment or risk losing office hour privileges, and (5) Students who make an appointment and do not show up nor provide a reasonable and verifiable excuse for the absence will lose office hour privileges. [Link to Scheduling System](https://wass.highlands.edu/pages/login.page.php) or go to <https://wass.highlands.edu/pages/login.page.php>

EXTENDED ABSENCE POLICY:

Students, who have circumstances that prevent them from continuing to attend classes over an extended period of time, sometimes request that the faculty member permit them to submit work in absentia to receive credit to complete the course. If the concurrent absences will constitute more than 15% of the class sessions for the term, then written permission from the Division Chair is required before any course assignments can be completed while missing class. The student must be in good academic standing in the course to make the request. All approved coursework must be completed by the end of the semester in which the course was begun. (Note: If a program has a more stringent absence policy than this, then the program policy prevails.)

INCLEMENT WEATHER POLICY:

In the event of weather related cancellation of classes, the schedule will pick up the sequence of lectures herein described as classes resume. The semester may then be extended, or double lectures designed as we go. If we have covered all material for a test, the test will be given on the first day back to class. If there is inclement weather, the college posts necessary announcements on www.highlands.edu. Cancellation notices for Floyd or Cartersville locations will be reported to radio stations and WXIA-TV in Atlanta. However, please be advised that station regulations may not allow for clarity in location-specific announcements such as "Georgia Highlands, Cartersville only." Generally speaking, stations simply broadcast something like "Georgia Highlands is closed." Classes in Paulding, Douglasville, or Marietta will be cancelled when, respectively, North Metro Technical College, University of West Georgia, or Kennesaw State University close. Policies for distance-learning courses relative to inclement weather are different. It is assumed that all distance-learning courses are considered accessible even during periods of inclement weather.

EVALUATION METHODS and GRADING:

GRADE ITEM	POINTS POSSIBLE	POINTS EARNED	% OF COURSE GRADE
Two announced lecture tests valued at 100 points each	200		20%
Midterm exam valued at 200 points	200		20%
Final exam valued at 200 points	200		20%
Class participation valued at 100 points total	100		10%
OER and LibGuides project valued at 100 points total	100		10%
Laboratory grade valued at 200 points	200		20%
Total	1000		100%

DESCRIPTION OF COURSE GRADES:

Lecture Exams: There will be two announced lecture exams during the semester. Each test will be valued at 100 points. A typical exam contains 75-100 questions but may be in any format including but not limited to: multiple-choice, true/false, matching, etc. Exam dates will be announced at least one week prior to the exam and every effort will be made to schedule those dates at the beginning of the semester so that students can plan their schedules accordingly. All students should avoid personal conflicts on anticipated exam dates. The instructor reserves the right to change exam dates as needed and will give notice of any changes in the exam schedule as soon as it's possible.

Mid-term Exam: A midterm exam will be administered over content covered during the first half of the semester. The mid-term will be composed of both old exam questions (exam 1) and new exam questions over material covered since exam 1). It is in the student's best interest to review the first exam prior to the midterm so they can avoid making the same mistakes twice and to identify areas of weakness. The midterm exam is valued at 200 points.

Final Exam: A final exam will be administered over content covered during the second half of the semester (everything since the midterm). The final exam will be composed of both old test questions (from test 3) and new test questions over material covered since exam 3. It is in the student's best interest to review exam 3 prior to the final exam so they can avoid making the same mistakes twice and to identify areas of weakness. The final exam is valued at 200 points.

Class Participation: Class participation will be determined by each instructor and may be calculated on the basis of one or more of the following methods: pop quizzes, homework, discussions in-class, discussions in D2L, in-class exercises, lecture assignments, projects, or producing a research paper over a selected topic. The weight of each item is determined by the individual instructor. The class participation grade is valued at 100 points total in the course grade. The instructor will announce their preferred class participation method at the beginning of the semester and will include a brief description and detailed instructions via D2L.

Fall 2016 Online BIOL 1010 Online Participation: Using Georgia View D2L, students will participate in threaded discussions. Dialog is asynchronous and students will participate in each discussion by "posting" a response to questions or comments posed to the class. There will be several threaded discussion topics related to material covered during the semester. Please be sure to use proper netiquette (if you don't know proper netiquette, then do a internet search on this subject). Lastly, students will be graded based on the **frequency** and quality of **participation**:

Frequency: Students must participate or "post" a minimum of two times in EACH threaded discussion forum (also known as discussion topics). There will be **10 discussion forums, each worth 10 points, for a total of 100 points for class participation!** Click on the discussions link in D2L to participate. NOTE:

- A student cannot post all of their posts on one day nor can a student post all their posts on the first two or last two days of a threaded discussion time frame.
- There must be one entire calendar day of no posting in between posts in a threaded discussion. For example, if you post on a Sunday you wait until Tuesday or Wednesday before posting again. The waiting time frame is a calendar day NOT a 24-hour time frame! Therefore, a student should never have two or more consecutive days of participation. This enables everyone to have fair chance of contributing to each discussion.
- Posting more than two times increases the chance of getting full credit for participation.

Quality: Students SHOULD provide additional information regarding a topic; find relevance to the information/discussion and explain why; present alternative explanations; and/or elaborate on ideas already discussed. Students SHOULD NOT post offensive comments; agree or disagree without elaborating why; duplicate information already presented; cut and paste other's responses; plagiarize information; and participate in "flaming" or online arguing and name-calling. NOTE:

- Each post must have a minimum of 4-5 sentences (i.e. a traditional paragraph)
- Each sentence must be complete and contain proper use of grammar.
- Each post must contain a specific question to get other students engaged in a deeper and critical conversation. A general question such as "what does everyone else think?" does not count!

- Each post must contain a reference to the book or some other source that supports your thoughts and opinion on a topic.
- If any of the above criteria are not met, then the student may receive either a zero or a prorated grade

If students do not satisfy the criteria for frequency AND quality criteria, then they will not receive credit for participation. Furthermore, the forums are only available during a very specific time frame listed below. Be mindful of those times. The instructor will not reopen a forum for any reason. If a student misses participating in a threaded discussion due to an excused absence, then the instructor reserves the right to give the student an alternative assignment in lieu of missed participation.

Rubric for grading discussion thread participation

Grading Factors	Number of Points out a total of 10	Do I have this factor? Yes or No?
1. Posted at least the minimum of two required posts in a discussion thread	2	
2. Have one or more <i>calendar days</i> separating posts (e.g. if you post on a Monday, then you have to wait until Wednesday or if it was the 22 nd of the month, then you must wait until the 24 th of the month)	2	
3. Each post contains at least four to five sentences using correct sentence structure and grammar	2	
4. Each post contains a content related question at the end to get other student involved with your point or perspective	2	
5. Each post contains a reference (e.g. the textbook, news article, Google scholar, Galileo)	2	

OpenStax/LibGuides Project: Each instructor has identified a small portion of the course content that he/she WILL NOT teach during the formal lecture portion of the class. Instead, students will be assigned a project that utilizes the OpenStax textbook and course LibGuides to introduce students to the content. The OpenStax project also requires students to complete a survey regarding the quality and efficiency of the OpenStax text and LibGuides in the completion of the project. Specific instructions for the project and accompanying survey will be distributed by the instructor at the beginning of the semester via D2L. The OpenStax/LibGuides Project is valued at 100 points in the overall course grade.

Lab Grade Calculation: The laboratory grade constitutes 20% of the overall course grade. The lab grade is based on active participation in weekly lab exercises. These exercises may but are not limited to completion of a lab notebook, pre or post lab quizzes, handouts, and laboratory activities, etc.

Lab Grade will be based on the following:	Points Possible	Points Earned
Completion of the Weekly Lab Exercise Note: The average on all lab activities will be used to determine the points earned. For example, your lab activity average is 85, then you will receive 85 out of a possible 100 points	100 points	
Lab Mid-term	50 points	
Lab Final Exam	50 points	
Total	200 points	

GRADE SCALE:

90 - 100% = A 80 - 89% = B 70 - 79% = C 60 - 69% = D < 59% = F

EARLY GRADES:

Georgia Highlands College offers a variety of part-of-term classes to allow our students to have flexible schedules. However, there are only three Semesters each year; Spring, Summer and Fall. It is only at the end of each Semester that grades are rolled to academic history and available on the official transcript. After each part-of-term, as soon as Instructors have entered grades, they may be viewed online by logging into the SCORE (https://discovery.highlands.edu:9986/pls/SCORE/twbkwbis.P_WWWLogin). Transcripts may also be request at any time by logging into the SCORE. Prior to the end of term, should a student need an early grade letter sent to another institution they may complete the request form and submit it to the Registrar's Office for processing (<http://www.highlands.edu/site/registrar-forms>). Please contact the Registrar's Office at registrar@highlands.edu for assistance.

EARLY WARNING PROGRAM:

Georgia Highlands College requires that all faculty members report their students' progress throughout the course of the semester as part of the institution-wide Early Warning Program (EWP). The objective of the program is to support academic success by reviewing early indicators of satisfactory student progress. In accordance with EWP, faculty members will provide the Registrar's Office with academic reports of each student enrolled in their course(s) at check points staggered throughout the semester. The following success factors are reported at their corresponding checkpoint:

Week 2: Notification of Non-Attendance

Week 6: Satisfactory or Unsatisfactory Progress

UNDER GEORGIA LAW, GRADES CANNOT BE DISTRIBUTED BY TELEPHONE OR EMAIL, OR POSTED BY SOCIAL SECURITY NUMBER.

FINANCIAL AID:

This message applies only to students receiving financial aid = "Federal regulations state that if a student did not attend classes and received failing grades, then the grades were not earned and financial aid needs to be reduced accordingly. Please be advised that any student receiving a 0.00 GPA will be required to prove that the 0.00 GPA was earned by attending classes or completing requirements for each class. Students who have earned at least one passing grade for the semester will not be affected by this regulation. If a student has properly withdrawn from all classes, the student's financial aid should be adjusted from the time they signed the withdrawal form".

TOBACCO-FREE CAMPUS:

Georgia Highlands College prohibits the use of tobacco products on any property owned, leased, or controlled by GHC. All faculty, staff, students, visitors, vendors, contractors, and all others are prohibited from using any tobacco products (i.e. cigarettes, eCigarettes, cigars, smokeless tobacco, snuff, chewing tobacco, etc.) while on GHC property.

IMPORTANT CLASS DATES:

Drop/Add Period:	8/13-8/17
Labor Day Holiday (no classes):	9/3-9/5
Fall Holiday (no classes):	10/10-10/11
Last day to withdraw with a "W":	10/19 by 5pm
Thanksgiving Holiday (no classes):	11/24-11/27
Last day of Class:	12/5

EXAM POLICIES:

	The exams may be comprised of short answer, multiple choice, and/or matching questions.
	The midterm is comprised of all of the chapters covered up until the midterm and the final is composed of all the chapters covered after the midterm.
	No study guide will be given for any exam
	Expect that all exams will use Respondus Lock Down Browser and Monitor
	I have created a sample exam that all students can take in order to get used to taking an online exam as well as check to see if you downloaded Respondus correctly. Please take this sample exam immediately to see if you need any technical assistance. This will insure that you will be ready to take the first exam on time. NOTE: The sample exam also serves as your attendance for the beginning of the course and failure to take the example exam by the end of the first week of class will result in you being administratively withdrawn from the course.
	<p>Make-Up Policy: A make-up exam will be allowed if the following two criteria are met:</p> <p>(1). The instructor is notified 24-48 hours prior to the exam time that a problem exists. The later the notification, the less likely the instructor will grant a make-up for a missed exam.</p> <p>(2). The absence must be excusable and documented. Examples of excused absences are illnesses with a doctor's excuse, death in the family, military deployment, etc. Employment conflicts, vacations and personal activities are not acceptable excuses. The instructor reserves the right to determine the type of documentation required and if an absence is excusable. Note: If either of the above conditions are not met, then the student forfeits their right to a make-up exam. Unexcused absences will result in a grade of zero for that exam. If the Instructor excuses an absence, the instructor reserves the right to (1) administer an alternative exam, (2) administer the exam in an alternative format (i.e. written, essay, oral, etc...) and (3) administer the exam IN PERSON at a time and location convenient to the instructor - NO EXCEPTIONS! Lastly, no student will be allowed to make up more than one exam during the semester!</p>

GENERAL COURSE ETIQUETTE & POLICIES:

	<p>EMAIL:</p> <ul style="list-style-type: none"> ▪ There is an email option in Georgia View D2L. Students are encouraged to use this option rather than GHC email to communicate. ▪ In general, all email will be answered in a timely manner. If you have a question, please indicate that with a "?" in the subject line of the email. ▪ The instructor will not accept any email from other sources other than Georgia View D2L or Georgia Highlands College!
	<p>TECHNOLOGY:</p> <ul style="list-style-type: none"> ▪ The instructor is not responsible for technical difficulties that arise with D2L. A "Getting Started Tutorial with D2L" is available at: http://www.highlands.edu/d2l. ▪ Students can get 24 Hour online Assistance at: https://d2lhelp.view.usg.edu. Students can retrieve their D2L login credentials from the GHC ID Lookup link at: http://www.highlands.edu/site/banner-portal.
	<p>TESTING AND GRADED MATERIAL:</p> <ul style="list-style-type: none"> ▪ Exam dates and Laboratory due dates are listed on the course schedule below. ▪ Exam dates and Laboratory due dates are subject to change at instructor's discretion. Students will be notified of any changes on the D2L course page. ▪ Exam as well as Discussion start and end dates may vary! Students are responsible of being mindful of the days and times set for each exam. Consult the exam schedule below. ▪ An exam length is dependent upon the number of questions on an exam. Based on distance learning research, one minute per question is usually allotted for any exam. Therefore, if an exam contains 25 questions, then 25 minutes is allotted. The assumption is that it takes a student an average time of one minute to answer a question. Therefore, some questions will take less time and others will take more time. Be mindful of the time during each exam.

- **IMPORTANT: It is assumed that students are absolutely not using anything to help them during an exam! The exams are monitored and if a student is not looking directly at the screen the entire time, then any other behavior (e.g. looking up, down, sideways, etc...) could be construed as cheating. Use of writing utensils, phones, paper, calculators, books notes, etc... is not permitted. Lastly, use of any device to copy, photograph, or record an exam is prohibited and will constitute a violation of the academic integrity code.**
- Be sure to check the maintenance schedule of Georgia View D2L - it changes frequently. Maintenance may occur during the time frame of an exam. Immediately contact the instructor if this occurs. The instructor reserves the right to change an exam date due to technical issues and/or because of maintenance schedule changes. The instructor will give an appropriate length of time to take online exams.
- Because exams are monitored and recorded please wear attire that you would wear as if you were attending class on campus.
- If any exam is monitored and a clear image is not displayed or recorded but the student completes the exam, then the exam is not counted and the student will receive a zero. Be sure that your web cam is working properly before taking an exam.
- Do not attempt to take the exam at the last minute. The program is designed to shut off on a specific day and at a specific time. If you attempt to take an exam and you have been disconnected from the Internet your exam will still count down the time - therefore you must try to reconnect immediately and finish the exam. If a student wishes to review an exam taken, then a student must make an appointment with the instructor during his office hours.
- Students will review an exam IN PERSON and NOT ONLINE. Furthermore, a student can review an exam only after the exam is taken - BUT before the next scheduled exam is administered. Once the subsequent exam has been administered, students will not be allowed to review old exams. Therefore, it is imperative to make an appointment to review exams during the instructor's office hours and on the campus his office is located.
- Missed exams, discussions, and labs without a reasonable and documented/verifiable excuse results in a zero for that missed material. Excusing students from missed material is at the instructor's discretion.
- Students are responsible for collecting and saving all graded material. If a problem or dilemma arises (e.g. error on an exam or grade miscalculation), students may be asked to provide all graded material handed out during the semester.
- **The instructor does not give a study guide for the midterm or the final exam.** Therefore, after submitting an exam, a student should highlight their notes regarding the specific topics that were covered on that exam. This will help students prepare for the final exam.

WITHDRAWAL POLICY:

In order to withdrawal, a course withdrawal form or a complete withdrawal form must be obtained from the Admissions and Records Office, filled out by the student, signed and submitted to the registrar's office. If this paperwork is not done, then you are still considered enrolled in the course and will get an F even if you don't participate at all. Do not expect a grade change from F to W once it is on the permanent transcript (following the close of the semester).

Any withdrawals after mid-semester will result in WF unless the Academic Vice-President's office gives approval for a hardship non-punitive withdrawal. Such a decision is made cooperatively between the Academic Vice-President's Office and the instructor. Having a less-than-desirable grade average is not reason enough for a hardship case. Make a decision based on grade before mid-semester. In such a case, inform the instructor of the hardship situation, and then inform the Office of the Vice President of Academic Affairs (Rome Campus). With appropriate documentation, the VP will send a letter of permission to the instructor to allow a non-punitive withdrawal.

In any withdrawal, forms are available at the Help Desk. It is also important that you check with the Financial Aid Office to see how your withdrawal might impact any financial aid.

DISABILITY STATEMENT:

"If any student in the class feels that he or she needs accommodation due to a disability, please feel free to discuss this with the instructor early in the term. Georgia Highlands College has resources available for students with certain disabilities. Accommodations may be made (such as providing materials in alternative formats, assuring physical access to classrooms or being sensitive to interaction difficulties that may be posed by communication and/or learning disabilities) through Student Support Services on all campuses. For more information please contact: Cartersville 678-872-8004; Douglasville and Floyd 706-368-7536; Marietta 678-915-5021; Paulding 678-946-1029."

ACADEMIC INTEGRITY

Cheating is strictly prohibited. Any evidence of cheating, or collaboration in cheating will result in a zero on the assigned materials and possible further disciplinary actions which may include failure in the course. Any appearance of cheating will be regarded as cheating so students should avoid any and all behaviors that could even be construed as cheating. Policies on student conduct and academic integrity are located in the GHC "Student Guide and Planner" and in the Student Handbook at <http://www.highlands.edu/site/academic-integrity-documents>.

TENTATIVE LECTURE SCHEDULE

NOTE: This is a tentative lecture schedule for BIOL 1010K. The instructor(s) teaching these classes reserves the right to alter this schedule at his/her discretion. Any changes in this schedule will be announced to the students as soon as it is possible.

DATE	DISCUSSION #	CONTENT	OPENSTAX
Immediately	Introduction Discussion	Take sample exam listed under "Assessments" on the course main page.	
8/13 – 8/20		Introduction to Biology Chemistry of Life	Chapter 1 Chapter 2
8/20 – 8/27	1	Cell Structure and Function How Cells Obtain Energy	Chapter 3 Chapter 4
8/27 – 9/2	2	Photosynthesis	Chapter 5
9/3 – 9/5		No classes – labor day Holiday	
9am 9/6 until 9am 9/10		TEST ONE	Over Chapters 1 - 5
9/10 – 9/17	3	Reproduction at the Cellular Level Cellular Basis of Inheritance	Chapter 6 Chapter 7
9/17 – 9/24	4	Patterns of Inheritance Molecular Biology	Chapter 8 Chapter 9
9/24 – 10/1	5	Biotechnology	Chapter 10
9am 10/1 until 9am 10/5		COMPREHENSIVE MIDTERM EXAM	Over Chapter 1 - 10
10/5 – 10/15	6	Evolution and its Processes Diversity of Life	Chapter 11 Chapter 12
10/10 & 10/11		Fall Break	

10/15 – 10/22	7	Diversity of Microbes, Fungi, and Protists Diversity of Animals	Chapter 13 Chapter 14
10/22 – 10/29	8	Diversity of Plants	Chapter 15
9am 10/29 until 9am 11/2		TEST THREE OER/Libguide Project Due 9am 11/2	Over Chapters 11 – 15
11/2 – 11/12		The Body Systems The Immune System and Disease	Chapter 16 Chapter 17
11/12 – 11/19	9	Animal Development and Reproduction Population and Community Ecology	Chapter 18 Chapter 19
11/19 – 11/31	10	Ecosystems and the Biosphere Conservation and Biodiversity	Chapter 20 Chapter 21
11/24 – 11/27		Thanksgiving Break	
9am 12/1 until 9am 12/5		COMPREHENSIVE FINAL EXAM	Over Chapters 11 - 21

TENTATIVE LABORATORY SCHEDULE

NOTE: This is a tentative laboratory schedule for BIOL 1010K. The instructor(s) teaching these classes reserves the right to alter this schedule at his/her discretion. Any changes in this schedule will be announced to the students as soon as it is possible.

Due Dates	TOPIC
By 9am 8/24	Lab Safety
By 9am 8/31	Scientific Method
By 9am 9/7	Composition of Cells
By 9am 9/14	Microscopy Cell Anatomy
By 9am 9/21	Diffusion Osmosis
By 9am 9/28	Enzyme Function
9am 10/3 until 9am 10/7	Lab Midterm Exam (located in D2L)
By 9am 10/12	Photosynthesis Cellular Respiration
By 9am 10/19	Mitosis and Meiosis
By 9am 10/26	Mendelian Genetics H Human Genetics

By 9am 11/2	Natural Selection Evidence of Evolution
By 9am 11/9	Sampling of Ecosystems
9am 11/14 until 9am 11/18	Lab Final Exam (located in D2L)

GOOD LUCK! HAVE FUN! And remember, I am here to help you succeed in this course. Please do not hesitate to ask questions if you need assistance.

In order to access detailed course materials including lecture notes, powerpoints, practice quizzes, and study guides, students must log into D2L: <https://highlands.view.usg.edu/d2l/home>



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Final Report

Affordable Learning Georgia Textbook Transformation Grants

Final Report

Date: 5/12/2017

Grant Number: 219

Institution Name(s): Georgia Highlands College

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

- Sharryse Henderson, Professor of Biology, Division of Natural Science and Physical Education, shenders@highlands.edu
- Andrew Dawson, Associate Professor of Biology, Division of Natural Science and Physical Education, adawson@highlands.edu
- Jason Christian, Instructor of Biology, Division of Natural Science and Physical Education, jachrist@highlands.edu
- Greg Ford, Dean, Division of Natural Science and Physical education, gford@highlands.edu
- Christin Collins, Librarian, ccollins@highlands.edu

Project Lead: Tom Harnden, Professor of Biology, Division of Natural Science and Physical Education tharnden@highlands.edu

Course Name(s) and Course Numbers: BIOL 1010 Foundations of Biology and BIOL 2154 General Zoology

Semester Project Began: Spring 2016

Semester(s) of Implementation: Fall of 2016

Average Number of Students Per Course Section: 26 (BIOL 1010) and 13 (BIOL 2154)

Number of Course Sections Affected by Implementation: 10 (BIOL 101) and 3 (BIOL 2154)

Total Number of Students Affected by Implementation: 549

1. Narrative

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

The purpose of this project was to transition from the use of student purchased course materials to the use of free resources in both BIOL 1010 Foundations of Biology and BIOL 2154 and General Zoology. Comparatively, substituting the use of free resources for purchased materials had little impact on overall grade distribution yet had a large impact on student opinion. Students who completed course surveys believed that the free resources were more than sufficient in helping them prepare for their course as well as decreased their stress in relation to school related finances. Additionally, faculty reported having an

increased awareness regarding the various limitations that contemporary students face as well as developed a sense of exigency to create curriculum and activities with these limitations in mind.

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

Overall, students enjoyed and appreciated the Libguides associated with each course but wanted more descriptive information on how the resources specifically aligned with the notes and the text and notes. Therefore, moving forward, the current resources will be organized to align with the notes and text and any additional resources that are added to the Libguide will be evaluated according to the specific relationship of the material that is covered in lecture and lab. Additionally, features of the text such as downloading and searching should have been included in the syllabus and/or notes to help inform students of their options. Lastly, students reported that resources should be more integrated. For example, notes provided should have embedded links directly to the text chapter and appropriate Libguide section.

2. Quotes

- “The textbook for this course was great and I loved the fact that it was free. The book was very sufficient and I loved the fact that I was able to save it as a PDF and didn’t always have to look at it online. I did not find that I need supplemental material to help me prepare for exams or labs.”
- “I think [the textbook] is more resourceful and easier to use. I like that I don’t have to carry around a textbook because they get really heavy. Plus it’s more convenient to use an online source just because I am always on some kind of computer anyway to do my assignments.”
- “The textbook is sufficient if your learning style is best utilized from just reading the book and having limited diagrams etc. but if you prefer, as I do, visual aids (which include videos) and information from outside resources, the Libguide is very helpful. I did use supplemental materials when preparing for exams. The discussions with videos and video links are very helpful, and while the book presents information in fact form, sometimes the supplemental materials provide “teachable” forms that explain the information provided in more detail.”

3. Quantitative and Qualitative Measures

3a. Overall Measurements

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: 549

- Positive: 81.1 % of 117 number of respondents
- Neutral: 19.9 % of 117 number of respondents
- Negative: 0 % of 117 number of respondents

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?

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)

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:

34 % of students, out of a total 387 students affected, dropped/failed/withdrew from BIOL 1010 in the final semester of implementation.

27 % of students, out of a total 162 students affected, dropped/failed/withdrew from BIOL 2154 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)

3b. Narrative

Data collected in this project include: Qualitative data from open-ended questions, Quantitative data from Likert-type questions, and grade distributions from pre and post project courses.

Qualitative Data Collected

Surveys distributed to students in BIOL 1010 and BIOL 2154 had open-ended questions (Table 1.0) that helped inform the nature of using both a free online text and course specific Libguide. In regards to the text, four themes emerged: (1) the free text was as comparable to

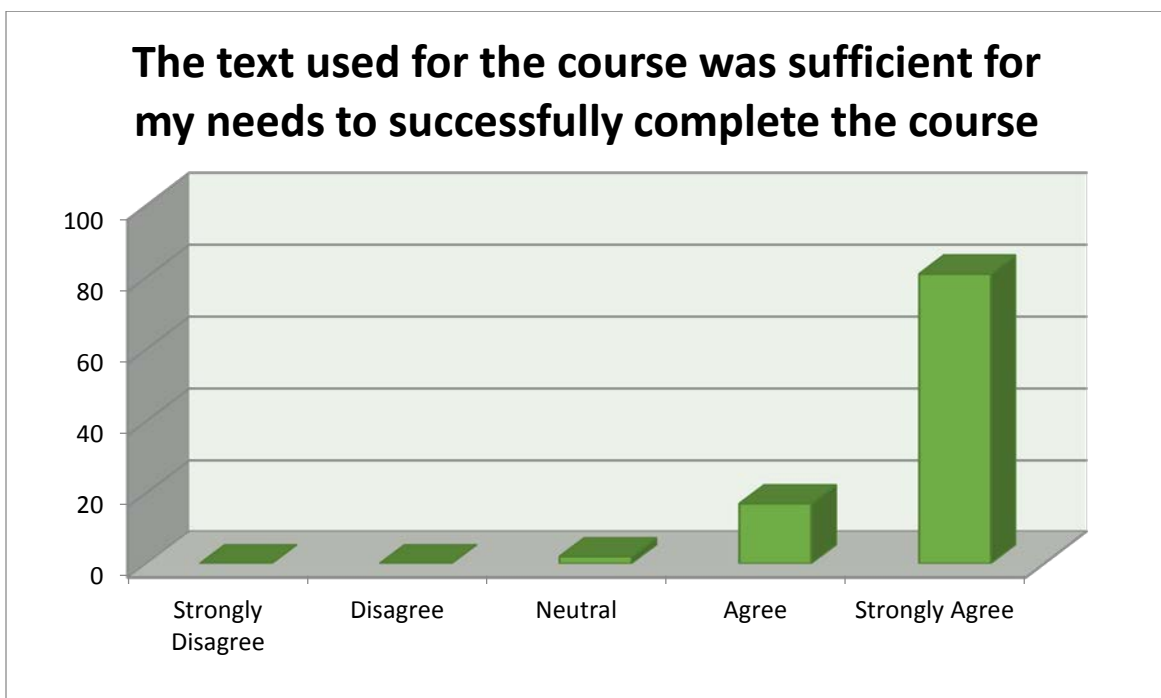
using a purchased text, (2) the text was easy to access and navigate, (3) students preferred to have choices regarding the format in which they access the text, and (4) students being slightly concerned about a few mistakes found in the textbook. Overall, the open-ended questions support the notion of continued use of free or low-cost resources in both courses. In terms of the Libguides, five themes emerged; (1) the sources in each section of the Libguide provided helpful alternative explanations to concepts covered, (2) videos and video tutorials were accessed the most, (3) more sources should be included, (4) Libguide sections and sources should be organized and aligned directly with the notes and/or chapter in the text, and (5) each type of source should have a summary provided. In sum, the Libguide was considered a sufficient supplement to each course and, with more sources and better organization, should provide very effective tool for nurturing future learners.

Text	Libguide
<ul style="list-style-type: none"> In a few sentences, please describe your feelings and beliefs about using a low or free textbook like OpenStax Concepts of Biology versus traditional course textbooks. If you were to change something about the OpenStax Concepts of Biology textbook, then what would it be? 	<ul style="list-style-type: none"> In a few sentences, describe your feelings and beliefs about using a Libguide rather than traditional supplemental resources that come with a textbook. If you were to change something about the course Libguide, then what would it be?

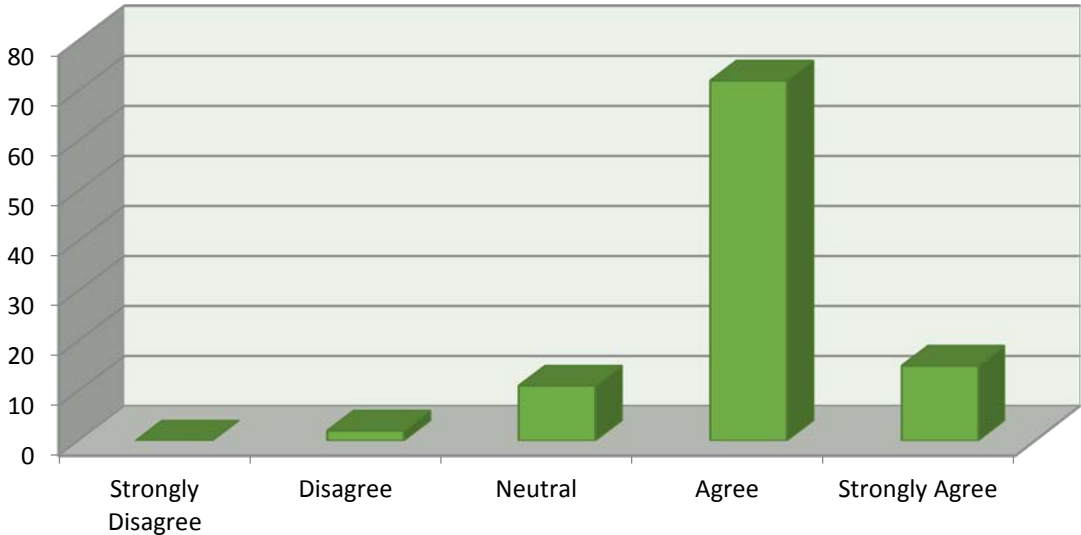
Table 1.0

Quantitative Data Collected

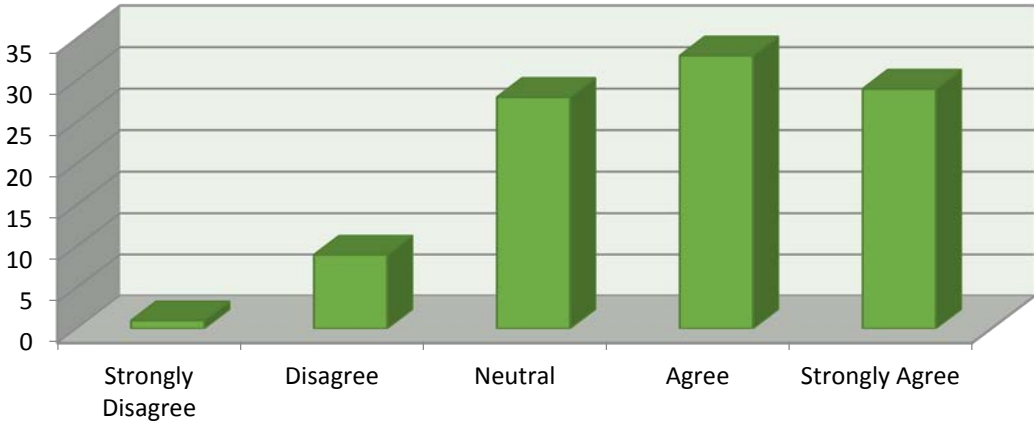
The questions and answer distributions used on the surveys are as follows:



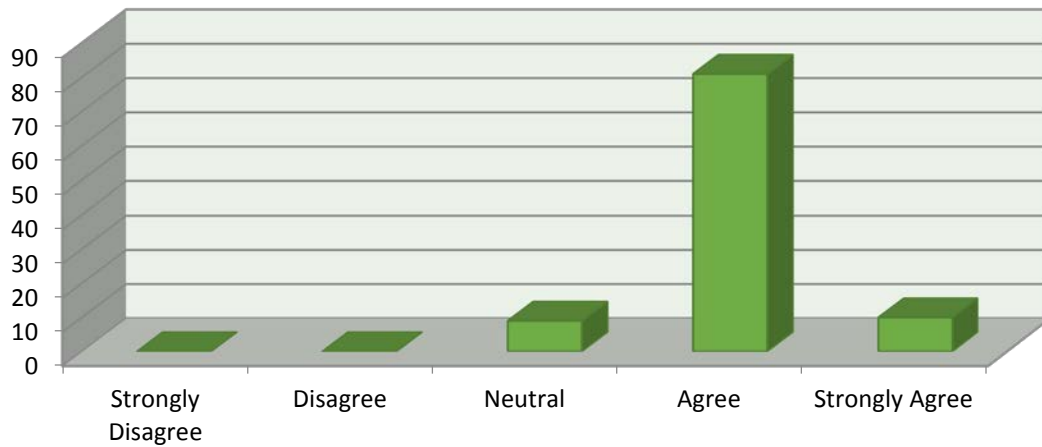
The Libguide for the course was helpful



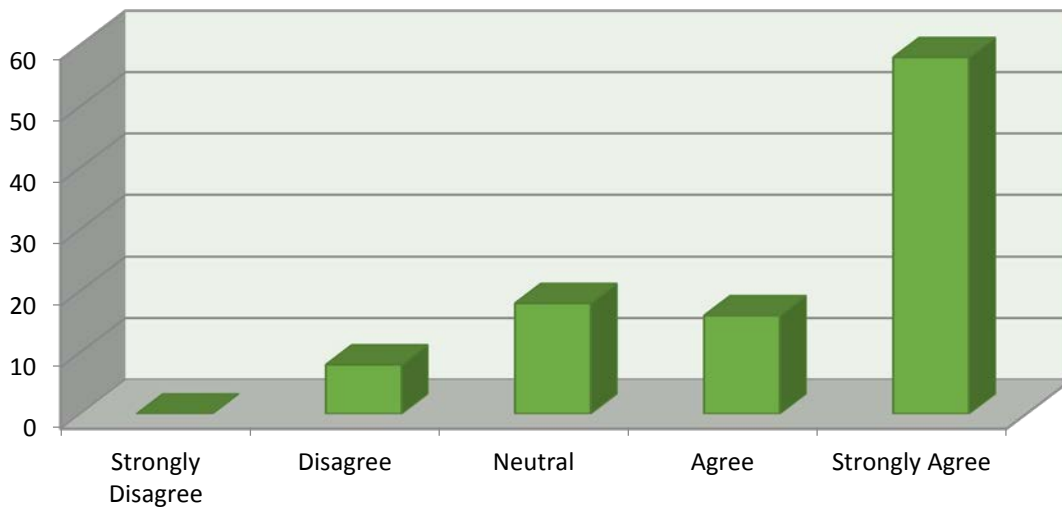
I take into consideration the cost of a course textbook and other class materials when I register for a class



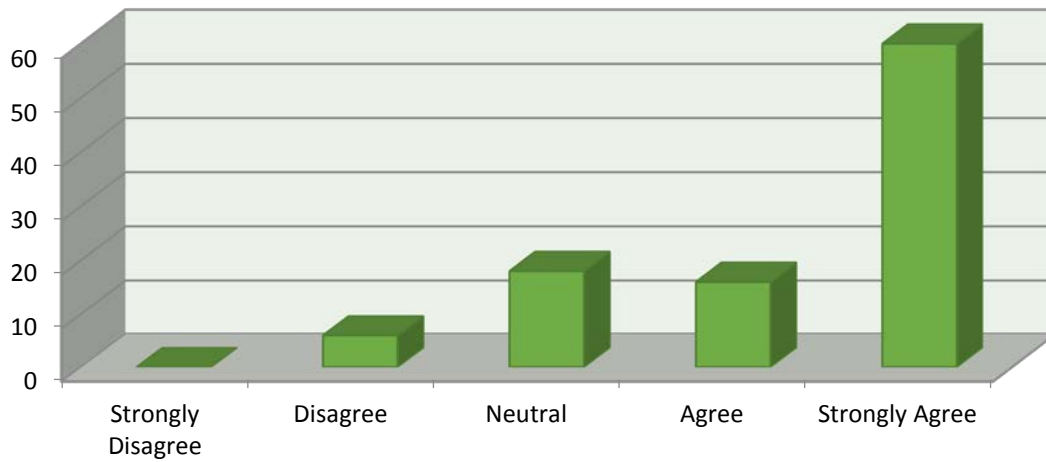
If a used textbook were cheaper and available to buy, then I would buy the used textbook rather than the new textbook



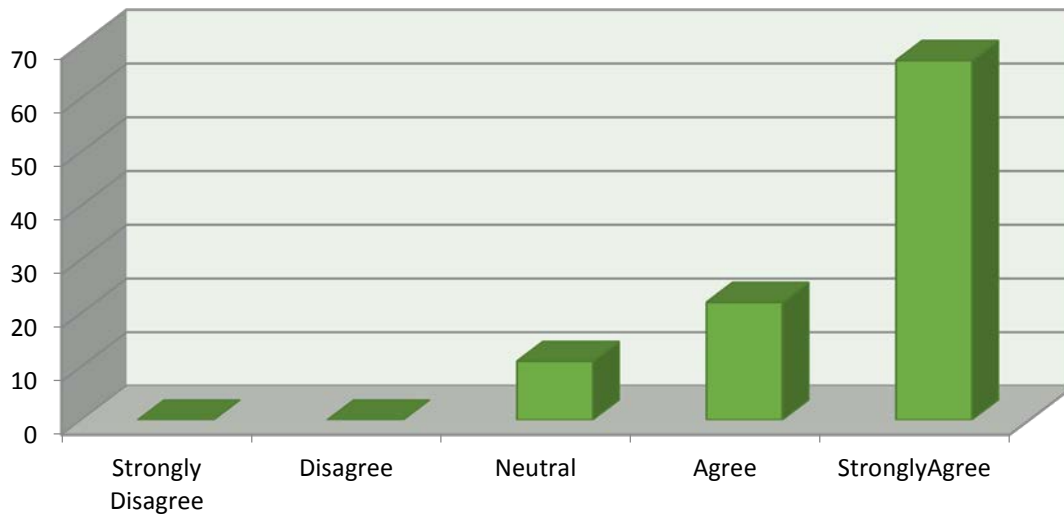
I will only buy a textbook if it is absolutely necessary



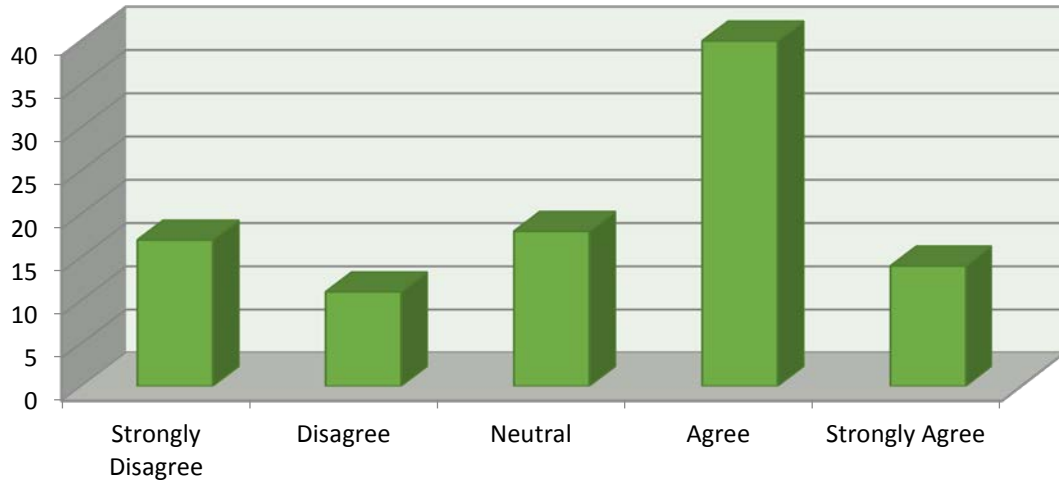
When an instructor develops a course, he or she should take into consideration the cost of a textbook and other course material



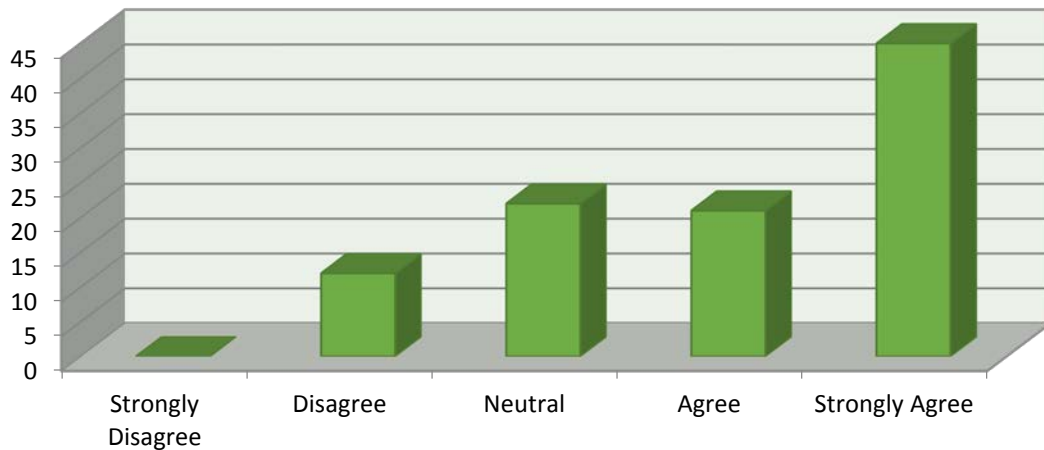
I would feel comfortable using free or low cost alternatives to a traditional course textbook



Although an instructor adopted a free textbook but it is only accessible online, I would still want the option to buy a printed copy



I have taken courses that require textbooks but the instructor rarely used or referred to the text



Summary of Quantitative Survey Questions

From the data the following conclusions were made:

1. The cost of a textbook is definitely a concern for students
2. Faculty should not only take into consideration of course material cost but also refer to and use the materials throughout the course
3. The textbook adopted for this project were sufficient for student learning
4. The Libguides created for this project were sufficient for student learning
5. Students are open to free or low cost resources other than traditional purchased materials

Grade Distributions

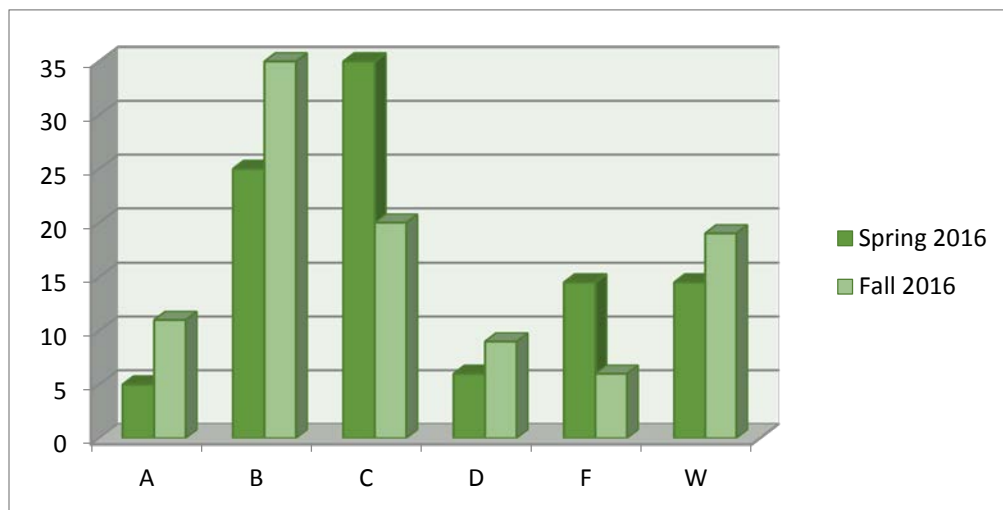


Figure 1.0 Grade Distribution BIOL 1010 Pre (Spring 2016) and Post (Fall 2016) ALG Project

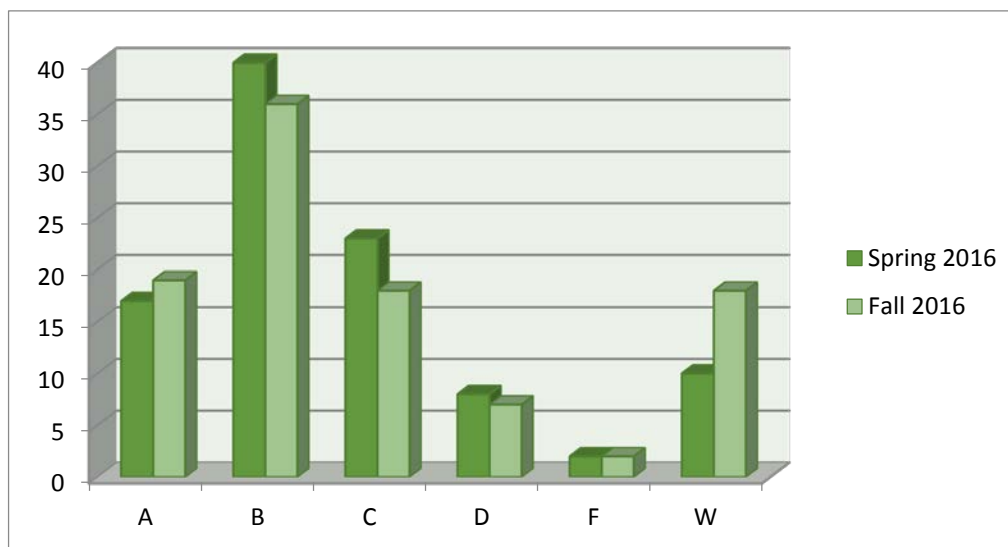


Figure 2.0 Grade Distribution BIOL 2154 Pre (Spring 2016) and Post (Fall 2016) ALG Project

4. Sustainability Plan

The division of Natural Sciences and Physical Education at Georgia Highlands College is committed to using free or low cost materials to support effective and affordable learning to students. With that said, the division will continue to use the current textbook as well as add more sources into the Libguides created for both biology courses. Additionally, both science faculty and librarians are committed to continually exploring options regarding alternative education materials and activities that will lead to meaningful learning while simultaneously decrease the financial concerns of students.

5. Future Plans

Using the information gleaned from the qualitative and quantitative portions of the surveys, effort will be forward concerning the reorganization of the Libguides to more directly reflect the notes and/or chapters yet still contain enough materials that would enable students to explore topics in greater detail. Additionally, it is hoped that faculty will use the Libguide in a more integrative manner.

6. Description of Photograph

- *List the names of the people in the separately uploaded photograph and their roles.*
- *E.G.: (left-right) Dr. Transformer, team lead and instructor of record; Agent Graphic, instructional designer; Dr. Philomath, subject matter expert; B. Bibliophile, librarian; A. Einstein, Student.*

<https://www2.highlands.edu/site/faculty-tharnden-foundationsofbiology>

<https://www2.highlands.edu/site/faculty-jachrist-zoology-lecture>