Affordable Learning Georgia Textbook Transformation Grants
Proposal Form

Please complete per inline instructions; completed form not to exceed four pages.

Institution Name	Albany State University		
Team Members (Name, Title, Department and email address for each)	Dr. Arun K. Saha, Associate Professor of Physics, Department of Natural & Forensic Sciences, arun.saha@asurams.edu Dr. Liqiu Zheng, Visiting Assistant Professor of Physics, Department of Natural & Forensic Sciences, Liqiu.Zheng@asurams.edu		
Sponsor, Title, Department	Department of Natural & Forensic Sciences		
Course Name, Course Number and Semester Offered (Spring 2015 Required)	Introductory Physics II - PHYS 1112- Spring 2015, Fall 2015		
Average Number of Students in the Course	100	**Number Course sessions per Academic year**	4 sessions (3 in spring & 1 in fall)
Award Category (pick one)	☐ No-Cost-to-Students Learning Materials ☒ OpenStax Textbooks ☐ Course Pack Pilots		
List the original course materials for students (including title, whether optional or required, & cost for each item)	*[Material Title, opt|req]* 1. Text Book – College Physics by Alan Giambattista, Betty Richardson & Robert Richardson- 4th Edition. (ISBN-978-0073512143). Required.	*[Cost]* 1. $210.56 ***Total Cost*=$210.56**	
Projected Per Student Cost	**=$32.95**	**Projected Per Student Savings (%)**	**84.35%**

1. PROJECT GOALS

To improve passing rate/retention rate, decrease dropout rate and enhance class-wide grade in Introductory Physics II (PHYS 1112) course by adopting low-cost and accessible electronic text book or eBook. To improve education quality by providing valuable supplemental materials from various text books in Desire to Learn (D2L) which will contain best topics from numerous textbooks and different styles to describe problems and solutions to provide better capacity to meet teaching-learning needs.

1.1 STATEMENT OF PROBLEM

*The **problem** in PHYS 1112 course is higher failing rate 35% and course-wide lower grade. The reason is 85% students do not read book because they do not buy book with very high price. As a result, large number of biology and forensic science students fail, their graduation is delayed, Instructor have to slow down paces and cannot deliver knowledge in a timely manner. Consequently, the Natural and Forensic Science Department suffers from drop in graduation rate and the progress in minority representation in STEM workforce is impeded.*

*The proposed **solution** is to provide low-cost and accessible eBook and to redesign the delivery of the course so that 100% students will read the book and perform activities from a one-stop learning environment*

***Key benefits** includes savings of $177 per student per sequence, making teaching materials more affordable/ accessible, higher passing rate, more passing students with better grades, delivering knowledge more effectively, making teaching more fulfilling.*

1.2 TRANSFORMATION ACTION PLAN

Adoption and Course Setting - For Introductory Physics I (PHYS 1112), **OpenStax Textbooks** will be adopted through an online learning management system *webassign.net* in October 2014. Although OpenStax text book can be obtained from online for free, but may not engage students in reading. So we will link Webassign to OpenStax to engage students in reading book by using Webassign's several extraordinary features in home assignment design. We will design home assignment setting in such a way that, after first incorrect submission, webassign will prompt students to read the relevant section of the eBook, after second failed attempt, students will be directed to practice a similar version of a problem and eventually will lead to a successful submission in a *fun* way. We will track how much time one student spends on study and consult with the poorly performing students before it is too late to recover.

Instructional Redesign - For effective learning one single book is not always enough. A particular book may be the best for illustration of a particular topic. So, students, who want to be successful in the course and want to go graduate schools, need to appear at MCAT, PCAT, GRE etc. For better preparation, students need to consult with several books. But purchasing several books does not serve the purpose of Affordable Learning Georgia (ALG) goal.

So, we will collect best topics from various books and post those in Desire to Learn (D2L) for students to access for free. Besides that, we will create calculated and multiple type questions in D2L and assign those for student practice and test. Thus, the students will have OpenStax eBook for their course and as a supplement they will have D2L to get exposure with various illustration styles of different topics from numerous authors with their unique style of describing problems and solutions. Proposed instructional redesign is illustrated in Fig.1.

Syllabus Redesign – We will modify current syllabus to reflect the instructional redesign. We will describe in syllabus how to enroll in the course and mention the weight of homework, D2L tests, and final exam in the syllabus.

Project Effectiveness Measurement - Project's quantitative impact on student success will be measured at the end of semester (middle of April 2015) by comparing failing and withdraw rate over the last 5 years period. Qualitative measurement will be performed by obtaining student feedback through two surveys – one in middle of February and other in middle of April 2015 by asking questionnaires on affordability, accessibility and satisfaction on text book, how long and how often they read book, motivation for homework, expectation in course.

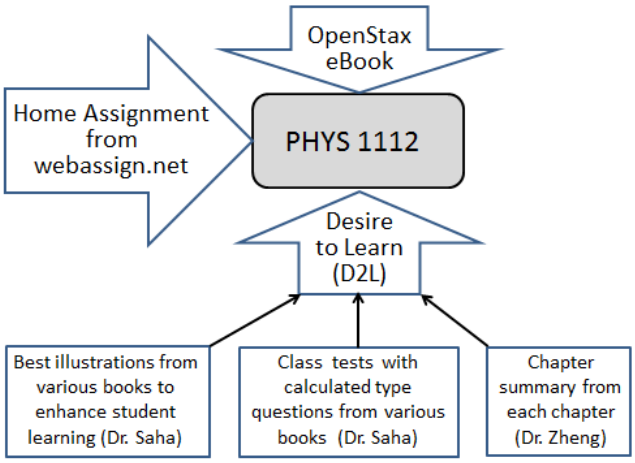

Fig.1. Redesign of Introductory Physics I course at a glance

Benefited Student numbers - Just for the proposed course (PHYS 1112) 100 students will be benefited with annual savings of ($211-$33) x 100 = $17800. But this transformation action can easily be extended to Introductory Physics I – PHYS 1111 (100 students) with annual savings of $17800, Principles of Physics I & II (30 students) with annual savings or $5400. Projected annual saving will be $17800+$17800+$5400 = $41000.

Capacity - Dr. Saha has expertise in D2L and has been involving students with D2L (formerly Blackboard Vista) since 2009 with limited activities such as test taking, study materials posting etc. Dr. Saha needs more effort to make D2L a full-fledged supplement of free online OpenStax eBook. Dr. Zheng has expertise in using Webassign.

1.3 TIMELINE

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
OpenStax eBook adoption & Course setting for Spring 2015 (Saha)	x								

Instruction Redesign (Saha, Zheng)	x	x	x	x					
Syllabus Redesign (Saha, Zheng)	x								
Chapter Summary (Zheng)	x	x	x	x					
Course Release (Saha, Zheng)				x	x	x	x		
Data Collection for evaluation purposes (Saha, Zheng)					x		x		
Evaluation of course effectiveness (Saha, Zheng)						x		x	
Final report (Saha, Zheng)								x	x

1.4 BUDGET

Item	Justification	Amount
One course release for Dr. Arun Saha	Dr. Saha will adopt OpenStax eBook with home assignment administered by webassign.net, create necessary settings & post necessary materials in D2L.	$4500.00
One course release for Dr. Liqui Zheng	Dr. Zheng will compose chapter/topic summary for each chapter/topic suitable for mobile devices. ASU	$4500.00
2 iPADs for Saha & Zheng	To be able to work anytime anywhere	$800.00
Travel for Saha, Zheng	To share experience in SACS AAPT meeting	$1000.00
	Total	$10800.00

1.5 SUSTAINABILITY PLAN

The redesigned course (PHYS 1112) will be offered every semester. Instructions for course adoption and settings through webassign.net will be saved in the department so that any instructor can move forward with the course without any difficulty. D2L portion of the course will be updated in a regular basis as necessary and instructions for importing materials from one previous course to current one in D2L environment can be obtained from IT department.

1.6 REFERENCES & ATTACHMENTS

Reference letter has been provided below.

September 4, 14
Dr. Arun Saha, Assoicate Professor &
Dr. Liqiu Zheng, Assistant Professor
Dept Natural and Forensic Science
504 College /dr
Albany, GA

Dear Drs Saha and Zheng:

I am writing to support your team effort submitting a proposal to the Affordable Georgia Learning Grant in the exploration of a mechanism to increase the learning outcome, both in passing rates and mastery of basic concepts, by lowering the cost of the physics textbooks, which apparently are among the most expensive undergraduate texts, not to mention one of the most challenging subjects to learn. I appreciate your attempt to put the text and other learning resources online in courseware environment supported by a third party solutions and D2L for effective problem solving and better learning outcomes. The department will support the need for a course release and resources needed to render your team effort successful. The department will also put into motion to facilitate the sustainability of the course sequence so that the OpenStax textbooks policy and WebAssign combination will prevail for physics courses in the future; and if successful tested, to expand the approach to other disciplines such as chemistry and biology.

Sincerely yours,

K. C. Chan, PhD
Interim Chair
Professor of Physics
Depart of Natural and Forensic Science

HSHT Project Director
RIMI Project Coordinator
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