Fall 2018

Elementary Statistics (GHC)

Camille Pace
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See next page for additional authors

Authors

Camille Pace, Katie Bridges, Laura Ralston, Elizabeth Clark, Brent Griffin, Kamisha DeCoudreaux, Zac Johnston, and Vincent Manatsa

UNIVERSITY SYSTEM
OF GEORGIA

Camille Pace, Katie Bridges, Laura Ralston, Elizabeth Clark,
Brent Griffin, Kamisha DeCoudreaux, Zac Johnston,
and Vincent Manatsa

Elementary Statistics

Affordable
Learning Georgia

Georgia's Virtual Library
GALILEO
An Initiative of the University System of Georgia

Affordable Learning Georgia

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.

Initial Proposal

Application Form

Personal

Details

*Submitter First Name:	Katie
*Submitter Last Name:	Bridges
*Submitter Title:	Instructional Designer
*Submitter Email Address:	kbridges@highlands.edu
*Submitter Phone Number:	678-872-8083
*Submitter Campus Role:	Proposal Investigator (Primary or additional)
*Applicant First Name:	Camille
*Applicant Last Name:	Pace
*Applicant Email Address:	cpace@highlands.edu
*Applicant Phone Number:	678.872.8127
*Primary Appointment Title:	Assistant Professor of Mathematics
*Institution Name(s):	Georgia Highlands College

Co-Applicant

*Co-Applicant:	Laura Ralston

Application Details

*Proposal Title:	356
*Proposal Category:	No-Cost-to-Students Learning Materials
*Final Semester of Instruction:	Fall 2018
*Are you using an OpenStax textbook?:	Yes

*Team Members (Name, Email Address):

Camille Pace, Assistant Professor of Mathematics, cpace@highlands.edu

Laura Ralston, Professor of Mathematics, lralston@highlands.edu

Katie Bridges, Instructional Designer, kbridges@highlands.edu

Betsy Clark, Librarian, eclark@highlands.edu

Four (4) additional faculty members teaching MATH 2200

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

Melanie Largin, Interim Dean of Mathematics, Georgia Highlands College

*Course Names, Course Numbers and Semesters Offered:

MATH 2200: Elementary Statistics

This is a basic course in statistics at a level that does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression and correlation. Students receive credit toward graduation for only one of the following courses: MATH 2200, MATH 1401.

This course is offered every semester as a face-to-face and fully online class.

*List the original course materials for students (including title, whether optional or required, & cost for each item):	OpenStax Introductory Statistics, ebook $0WebAssign OpenStax Access Card, $ 49.50TI-84 Calculator, $ 100.00
*Average Number of Students per Course Section:	25
*Number of Course Sections Affected by Implementation in Academic Year:	31
*Average Number of Students Per Summer Semester:	150
*Average Number of Students Per Fall Semester:	323
*Average Number of Students Per Spring Semester:	305
*Total Number of Students Affected by Implementation in Academic Year:	775

*Requested Amount of Funding:	30,800
*Original per Student Cost:	149.50
*Post-Proposal Projected Student Cost:	0
*Projected Per Student Savings:	70% at 49.50, 30% w/o TI-84 at 149.50
*Projected Total Annual Student Savings:	61,811

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

This course will be entirely hosted in D2L with a companion LibGuide.

*Project Goals:

We intend to provide completely free, high quality learning materials for Georgia Highlands College students who take MATH 2200 by adopting Open Educational Resource materials and switching from the current purchased courseware and calculator to a no cost alternative. By adopting Open Educational Resources (OER) materials, students will have immediate access to the textbook on the first day of class. We expect to see a decrease in the withdrawal rates of our students with the transformation to the OER. While it is important to note that this project proposal is designed to meet the criteria of the "Top 100 Undergraduate Courses", it also bears mentioning that there has been no other proposal that used the LMS as the courseware and the repository for the course materials. We hope to contribute to the growing body of resources for this course.

Georgia Highlands College completed a transformation to the OpenStax Statistics textbook within the last few years and paired the book with WebAssign as the courseware. Since the transformation and switch to WebAssign from MyMathLab, Cengage has purchased WebAssign. Out of concern for the potential increase in the software pricing, the decision was made to transform the course to be completely free. Instead of using WebAssign for the courseware we will be using D2L to the fullest capabilities. The largest service areas for GHC include Bartow, Cobb, and Floyd County. The median incomes for these areas are $22,595, $33,778, and $21,218, respectively. In Floyd County, 19.6% of families live below the poverty line. Often times, this means that our students are faced with the decision to either purchase books for school or pay the bills that sustain their households. Adopting an OER helps create access to better futures and an exit from poverty for our students. With this transformation, the estimated collective savings for students in these 31 sections is $116,331 each academic year.

Adopting OER materials and using our own LMS increases preparedness of adjunct instructors. Often times, instructors have to be hired very late in the summer and they are not given adequate time to acclimate to both the LMS and WebAssign. This lack of access and

training can negatively affect student success. The creation of master course in the LMS ensures that instructors will have all of the resources necessary to teach and support student success.

To evaluate and assess the effectiveness of this conversion we will measure students' perceptions and experiences with OER materials as well as the course success rates with OER materials compared against previous courses not using OER materials.

*Statement of Transformation:

Georgia Highlands College's Elementary Statistics MATH 2200 course is a 15-week course in basic statistics at a level that does not require knowledge of Calculus. Therefore, the primary transformation to the Elementary Statistics, MATH 2200, will be to transition from the current lower-cost materials to no-cost materials and to incorporate more accessible low-cost resources for statistical analysis, while preserving academic freedom for the full-time and adjunct faculty who routinely teach the course.

In this class, students complete most of their assignments in WebAssign which is owned by Cengage. WebAssign is where students complete their homework and exams while D2L contains the materials and discussions for the course. One drawback of the software is that if the students need technical support, they could spend up to three or four hours on hold with Cengage support and often not get the required help. Also, WebAssign also has some compatibility issues with Mac hardware and Adobe Acrobat.

The plan is to use D2L exclusively to build lessons including power points, closed captioned videos, and extra step-by-step notes, homework-based quizzes to help with the material, and exams to show mastery of the lessons. Susan Dean and Barbara Illowsky's free textbooks, Collaborative Statistics and Introductory Statistics, will be embedded in the course and their problems will be used for homework. While many students have access to the Texas Instruments calculator that is used to solve the homework, some students have a difficult time coming up with the funds to pay for a calculator that can cost up to $100. We will provide alternate ways to solve the problems that is different from the calculator, so all students can be successful and start the course on the first day without waiting for materials and equipment.

At GHC, all Math 2200 instructors are required to use the same textbooks and materials. To help ease the transition, all Math 2200 faculty will be required to attend training on the new materials and technology. A master syllabus for the course will be created and made available for faculty and students on D2L to provide consistency. Additionally, the faculty included in the grant will be required to fill out a survey at the end of each module to help summarize their experiences.

In alignment with the TILT framework, this transformation will allow for the creation of module materials and homework quizzes, exams, and discussions that reinforce the course Student

Learning Outcomes. Students will learn at the beginning of the course that all assignments are designed with the goal of mastering course content. The mastery of the content ensures students can carry out these processes in a business setting.

*Transformation Action Plan:

The transformation action plan will be accomplished in three phases before the course is delivered in Fall 2018: pre-planning, planning, and course redesign.

Pre-Planning

In the pre-planning phase, the Subject Matter Experts (SMEs) will research and evaluate additional options for no-cost textbook paired with a low-cost/no-cost learning management system (LMS). The SMEs will attempt to address frequent concerns from faculty expressed during the implementation of the open-resource textbook, Openstax Introductory Statistics, paired with the learning management system, WebAssign. Those concerns include:

Text assumes students know background information when presenting new concepts

Text is sequenced awkwardly

Text has very few examples

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LMS has too few problems from which to select

LMS does not have testing software (test generator)

LMS requires HTML and coding knowledge to modify or write questions

Additionally, the SMEs will research and evaluate alternative technologies for performing statistical analysis, beyond the Texas Instrument TI-84 calculator, which cost approximately $100.

Planning

In the planning phase, the SMEs will outline the content appropriate for a 15-week course in basic statistics at a level that does not require a knowledge of Calculus. The SMEs will work with the instructional designer to develop the master course ensuring it meets all quality and accessibility criteria. Activities, assessment, content, videos, and other supplementary materials will be developed and added to the master course. The planning phase of this project will be completed prior to Fall 2018.

Course redesign

In a pursuit of student success, a variety of proven fundamental methodologies tied to teaching and learning will be utilized in the course. The metacognitive process outlined by Dr. Saundra McGuire in *Teaching Students How to Learn* will be employed; although predominantly used in a developmental or academic success course, the techniques should also be beneficial to the

content and application format of Elementary Statistics. Furthermore, the pedagogical elements from Benedict Carey's *How We Learn* will enhance the course, which is taught in at least two different modalities.

Finally, in addition to the creation of the master course, a Library Guide will be created to allow the course redesign and all the compiled resources to be shared with faculty at Georgia Highlands College, as well as with other faculty via the Creative Commons licensing.

*Quantitative & Qualitative Measures: Assessment of this course is going to take place on a multitude of levels. The assessment measures will be both qualitative and quantitative. Qualitative measures will be carried out via survey that occurs two times during the semester, at the midpoint and the end of the semester. The survey will use a satisfaction scale. Levels will be Satisfied (5), Somewhat Satisfied (4), Neutral (3), Somewhat Dissatisfied (2), and Dissatisfied (1). Additionally, students will be asked to give open-ended feedback on the websites used for statistical analysis and course materials.Faculty teaching with the new material will be asked to give feedback like the students and will have a survey after each of the four modules to help quickly identify issues. Based on this analysis, the course can be continually updated to maximize student success.The course will be evaluated quantitatively by comparing DWF rates of the OER course to courses not using the OER. There may be a need to use data from previous semesters for this measurement. The other way that the course will be evaluated quantitatively is comparing overall course grade, percentage of content visited by the student and the pass rates associated with the Student Learning Outcomes for the course. In order to obtain this data, the OER content will be aligned with the Student Learning Outcomes (SLO), course objectives and assignments in the course. Each SLO and course objectives will be considered "passed" when students achieve a grade of 70 or greater on the assignments in the course. Using the Competency Tool in the Learning Management will allow for continuous calculation. The desired outcome is that the difference between the students' final grades and pass rate of the SLOs will be no more than a 10% difference.

*Timeline:

October – December 2017

Assess OER Options

February – May 2018

Attend Kick-Off Meeting

Locate and build supplemental materials

Redesign course in DesireToLearn (D2L) master course

Build Assessment Tools

August 2018

Delivery of course, online modality

November 2018

Data collection from students and faculty regarding experience and effectiveness of assessment tools

December 2018

Make modifications to course based on data collection

Submit final report

*Budget:

Camille Pace, MSAS Assistant Professor of Mathematics

Instructor of Record/SME/Principle Investigator $5,000.00

Laura Ralston, M.Ed. Professor of Mathematics

Instructor of Record/SME/Principle Investigator $5,000.00

Katie Bridges, M.Ed.

Instructional Designer $5,000.00

Betsy Clark, MLIS

Librarian $3,000.00

Four (4) Additional Instructors of Record ($2,800 each) $11,200.00

Travel to Kick-off Meeting $ 800.00

Total $30,000.00

*Sustainability Plan:

2200 is offered each semester and is offered in two formats: face-to-face and online. All non-STEM majors as well as some STEM majors take Math 2200 as their area D mathematics course requirement. Also, students in the four Bachelor degree programs, Nursing, Dental Hygiene, Healthcare Management, and Logistics and Supply Chain Management, require Math 2200 as a prerequisite. Thus, a no-cost textbook paired with no-cost learning management system has the potential to increase enrollment in the course, as well as the institution. A master course that includes the developed activities, assessments, videos, supplementary materials, and grading rubrics will be shared with any Georgia Highlands faculty member, full or part time. Additionally, the master course and Library Guide will be available to faculty at other USG institutions via the Brightspace platform. The course materials will be maintained by the SMEs, Camille Pace and Laura Ralston, and the instructional designer, Katie Bridges.

Add Other Email Addresses for Notifications

**Enter recipient(s) email   --
address(es):**

GEORGIA HIGHLANDS

COLLEGE

FLOYD CAMPUS
3175 Cedartown Highway
Rome, GA 30161

January 9, 2018

Dear ALG Grants Committee Members:

I am pleased to write this letter in support of this Mathematics/Statistics team, as they seek grant funding to incorporate free and open texts and other instructional materials for MATH 2200 Elementary Statistics. There are numerous reasons of efficiency, pedagogy, and instructional transformation which compel me to support this initiative.

First, this instructor/instructional designer/librarian team of collegiate educators will engage in a thoughtful process that broadly affects the student body at Georgia Highlands College. We expect to impact some 800 students per year through redesign of this course, a significant number of students needing to complete several associate pathways and baccalaureate majors. As referenced in the body of the application, GHC students living in the three primary counties of NW Georgia residence already struggle with high levels of poverty, low household incomes, and unrelenting competition for their available dollars; textbooks are too often relegated to a lesser priority, and it shows in diminishing student success.

Second, money saved through this plan's implementation would provide opportunity for both economy and learning. Case in point, with textbook costs rising at an unheard of rate, our students could be saving over $116,000 per year, completely eliminating the requirement for a costly WebAssign ancillary and the necessity for a specialized calculator, at $149.50 per unit, with open educational resources. We are building the entire course in D2L so students have immediate access to everything from day one and do not have to purchase access to an outside software application or a calculator. Without doubt, this affects our students' foundational learning, tenacity, and ability to thrive in this class and beyond.

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

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

Sincerely,

Renva Watterson

Renva Watterson, Ed.D.

Vice President for Academic Affairs

CARTERSVILLE CAMPUS	DOUGLASVILLE SITE	FLOYD CAMPUS	MARIETTA SITE	PAULDING SITE
678-872-8000	678-872-4200	706-802-5000	678-872-8501	678-946-1100

GEORGIA HIGHLANDS

COLLEGE

January 12, 2018

Affordable Learning Georgia Textbook Transformation Grants
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Review Committee:

I am pleased to offer my fervent support for the Affordable Learning Georgia Textbook Transformation grant proposal submitted by Camille Pace (Assistant Professor of Mathematics) in collaboration with Laura Ralston (Professor of Mathematics), Katie Bridges (Instructional Designer), and Betsy Clark (Librarian). This proposal is a continuation of our earlier ALG work to convert our Math 2200 Statistics course to an OpenStax textbook. While using our current OpenStax material and WebAssign homework support, we realized that there was a need to improve the text and currently commercially available homework support for this book. We plan to meet this improvement goal by providing a zero cost product to our students through the development of our own homework system and teaching materials delivered through USG's D2L learning management system.

The benefits of this approach to our students, faculty, and USG as a whole are enumerated below.
1) Reducing course material cost per student from $149.50, which includes a calculator purchase, to $0
2) All materials will be available to the student upon enrollment in D2L so students can start working and learning immediately
3) Combining and compiling the knowledge and teaching best practices of our subject matter experts in one course shell for dissemination to all faculty teaching the course
4) Providing consistency of approach and evaluation for all of our students taking the course
5) Internal control of the materials gives us the ability to quickly capture and implement course improvements including but not limited to tailored videos, examples, collaborative discussions, and outside resource links
6) Since we will be relying only on internal resources, training of new faculty will be easier to schedule and more responsive to specific needs
7) Using the Competency Tool and student learning outcome linkages in D2L will help focus the course while giving us the ability effectively track our progress toward attaining these goals
8) Use of D2L and the incorporation of the library guide will provide a mechanism for sharing this work easily, not only among USG institutions, but with the academic community at large through MERLOT or other curated collections

Georgia Highlands College is firmly committed to meeting our students where they are and giving them the tools they need to excel. Projects such as this are an important part of that toolkit. Thank you for your foresight in developing this grant pool and the opportunity to submit this proposal.

Regards,

Melanie S. Largin
Interim Dean of Mathematics

Affordable Learning Georgia Textbook Transformation Grants
Round Eleven
For Implementations beginning Spring Semester 2018
Running Through Fall Semester 2018

Proposal Form and Narrative

- *The proposal form and narrative .docx file is for offline drafting and review. Submitters must use the InfoReady Review online form for proposal submission.*
- ***Note: The only way to submit the proposal is through the online form in Georgia Tech's InfoReady Review at:***
  https://gatech.infoready4.com/#competitionDetail/1757803
- *If you are copying and pasting into InfoReady Review from this form, first convert the file to **plain text** and copy/paste from the plain text file.*
  - o *In Word, go to File > Save As… > and change the file format to "Plain Text (.txt)."*
  - o *Copy and paste from the .txt file.*
  - o *Be sure to save both copies in case you are asked to resubmit.*
- *Microsoft Word Document formatting pasted into InfoReady Review will render the reviewer copy unreadable. **If you paste Word-formatted tables into InfoReady Review, you may be asked to resubmit your application if time permits.***
- *Italicized text is provided for your assistance; please do not keep the italicized text in your submitted proposal. Proposals that do not follow the instructions may be returned.*

Submitter Name	Katie Bridges
Submitter Title	Instructional Designer
Submitter Email	kbridges@highlands.edu
Submitter Phone Number	678-872-8083
Submitter Campus Role	Proposal Investigator
Applicant Name	Camille Pace
Applicant Email	cpace@highlands.edu

Applicant Phone Number	678-872-8127
Primary Appointment Title	Assistant Professor of Mathematics
Institution Name(s)	Georgia Highlands College
Team Members	*Camille Pace,* Assistant Professor of Mathematics, cpace@highlands.edu
	Laura Ralston, Professor of Mathematics, lralston@highlands.edu
	Katie Bridges, Instructional Designer, kbridges@highlands.edu
	Betsy Clark, Librarian, eclark@highlands.edu
	Four (4) additional faculty members teaching MATH 2200
Sponsor, Title, Department, Institution	Melanie Largin, Interim Dean of Mathematics, Georgia Highlands College
Proposal Title	
Course Names, Course Numbers and Semesters Offered	MATH 2200: Elementary Statistics
	This is a basic course in statistics at a level that does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression and correlation. Students receive credit toward graduation for only one of the following courses: MATH 2200, MATH 1401.
	This course is offered every semester as a face-to-face and fully online class.
Final Semester of Instruction	Fall 2018

Average Number of Students Per Course Section	25	Number of Course Sections Affected by Implementation in Academic Year	31	Total Number of Students Affected by Implementation in Academic Year	778
Average Number of Course Sections Per Semester	Spring 2018: 12 sections (305 total students, average 25 per section) Fall 2017: 13 sections (323 total students, average 25 per section) Summer 2017: 5 section, (150 total students, average 25 per section)				
Award Category (pick one)	☒ No-or-Low-Cost-to-Students Learning Materials ☐ Specific Core Curriculum Courses				
Are you planning on using an OpenStax textbook?	☒ Yes ☐ No				
List the original course materials for students (including title, whether optional or required, & cost for each item)	OpenStax Introductory Statistics, ebook $0 WebAssign OpenStax Access Card, $ 49.50 TI-84 Calculator, $ 100.00				
Requested Amount of Funding	$ 30,800				
Original Per Student Cost	$ 149.50				
Post-Proposal Projected Per Student Cost	$ 0				

Projected Per Student Savings	$ 149.50
Projected Total Annual Student Savings	$ 116,311.00

NARRATIVE

1.1 PROJECT GOALS

We intend to provide completely free, high quality learning materials for Georgia Highlands College students who take MATH 2200 by adopting Open Educational Resource materials and switching from the current purchased courseware and calculator to a no cost alternative. By adopting Open Educational Resources (OER) materials, students will have immediate access to the textbook on the first day of class. We expect to see a decrease in the withdrawal rates of our students with the transformation to the OER. While it is important to note that this project proposal is designed to meet the criteria of the "Top 100 Undergraduate Courses", it also bears mentioning that there has been no other proposal that used the LMS as the courseware and the repository for the course materials. We hope to contribute to the growing body of resources for this course.

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To evaluate and assess the effectiveness of this conversion we will measure students' perceptions and experiences with OER materials as well as the course success rates with OER materials compared against previous courses not using OER materials.

1.2   STATEMENT OF TRANSFORMATION

Georgia Highlands College's Elementary Statistics MATH 2200 course is a 15-week course in basic statistics at a level that does not require knowledge of Calculus. Therefore, the primary transformation to the Elementary Statistics, MATH 2200, will be to transition from the current lower-cost materials to no-cost materials and to incorporate more accessible low-cost resources for statistical analysis, while preserving academic freedom for the full-time and adjunct faculty who routinely teach the course.

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In alignment with the TILT framework, this transformation will allow for the creation of module materials and homework quizzes, exams, and discussions that reinforce the course Student Learning Outcomes. Students will learn at the beginning of the course that all assignments are designed with the goal of mastering course content. The mastery of the content ensures students can carry out these processes in a business setting.

1.3   TRANSFORMATION ACTION PLAN

The transformation action plan will be accomplished in three phases before the course is delivered in Fall 2018: pre-planning, planning, and course redesign.

Pre-Planning

In the pre-planning phase, the Subject Matter Experts (SMEs) will research and evaluate additional options for no-cost textbook paired with a low-cost/no-cost learning management system (LMS).   The SMEs will attempt to address frequent concerns from faculty expressed during the implementation of the open-resource textbook, Openstax Introductory Statistics, paired with the learning management system, WebAssign. Those concerns include:

- Text assumes students know background information when presenting new concepts

- Text is sequenced awkwardly

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- LMS has too few problems from which to select

- LMS does not have testing software (test generator)

- LMS requires HTML and coding knowledge to modify or write questions

Additionally, the SMEs will research and evaluate alternative technologies for performing statistical analysis, beyond the Texas Instrument TI-84 calculator, which cost approximately $100.

Planning

In the planning phase, the SMEs will outline the content appropriate for a 15-week course in basic statistics at a level that does not require a knowledge of Calculus. The SMEs will work with the instructional designer to develop the master course ensuring it meets all quality and accessibility criteria.   Activities, assessment, content, videos, and other supplementary materials will be developed and added to the master course. The planning phase of this project will be completed prior to Fall 2018.

Course redesign

In a pursuit of student success, a variety of proven fundamental methodologies tied to teaching and learning will be utilized in the course.   The metacognitive process outlined by Dr. Saundra McGuire in *Teaching Students How to Learn* will be employed; although predominantly used in a developmental or academic success course, the techniques

should also be beneficial to the content and application format of Elementary Statistics. Furthermore, the pedagogical elements from Benedict Carey's *How We Learn* will enhance the course, which is taught in at least two different modalities.

Finally, in addition to the creation of the master course, a Library Guide will be created to allow the course redesign and all the compiled resources to be shared with faculty at Georgia Highlands College, as well as with other faculty via the Creative Commons licensing.

1.4   QUANTITATIVE AND QUALITATIVE MEASURES

Assessment of this course is going to take place on a multitude of levels. The assessment measures will be both qualitative and quantitative. Qualitative measures will be carried out via survey that occurs two times during the semester, at the midpoint and the end of the semester. The survey will use a satisfaction scale. Levels will be Satisfied (5), Somewhat Satisfied (4), Neutral (3), Somewhat Dissatisfied (2), and Dissatisfied (1). Additionally, students will be asked to give open-ended feedback on the websites used for statistical analysis and course materials.

Faculty teaching with the new material will be asked to give feedback like the students and will have a survey after each of the four modules to help quickly identify issues. Based on this analysis, the course can be continually updated to maximize student success.

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1.5   TIMELINE

Time	Milestone
October – December 2017	Assess OER Options
February – May 2018	Attend Kick-Off Meeting Locate and build supplemental materials Redesign course in DesireToLearn (D2L) master course Build Assessment Tools
August 2018	Delivery of course, online modality
November 2018	Data collection from students and faculty regarding experience and effectiveness of assessment tools
December 2018	Make modifications to course based on data collection
December 2018	Submit final report

1.6 BUDGET

Camille Pace, MSAS Assistant Professor of Mathematics
Instructor of Record/SME/Principle Investigator $5,000.00

Laura Ralston, M.Ed. Professor of Mathematics
Instructor of Record/SME/Principle Investigator $5,000.00

Katie Bridges, M.Ed.
Instructional Designer $5,000.00

Betsy Clark, MLIS
Librarian $3,000.00

Four (4) Additional Instructors of Record ($3,000 each) $12,000.00

Travel to Kick-off Meeting $ 800.00
Total $30,800.00

1.7 SUSTAINABILITY PLAN

Math 2200 is offered each semester and is offered in two formats: face-to-face and online. All non-STEM majors as well as some STEM majors take Math 2200 as their area D mathematics course requirement. Also, students in the four Bachelor degree programs, Nursing, Dental Hygiene, Healthcare Management, and Logistics and Supply Chain Management, require Math 2200 as a prerequisite. Thus, a no-cost textbook paired with no-cost learning management system has the potential to increase enrollment in the course, as well as the institution. A master course that includes the developed activities, assessments, videos, supplementary materials, and grading rubrics will be shared with any Georgia Highlands faculty member, full or part time. Additionally, the master course and Library Guide will be available to faculty at other USG institutions via the Brightspace platform. The course materials will be maintained by the SMEs, Camille Pace and Laura Ralston, and the instructional designer, Katie Bridges.

1.8 REFERENCES & ATTACHMENTS

Carey, B. (2015). *How we learn: The surprising truth about when, where and why it happens*. Random House.

McGuire, S. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Stylus.

MSU Office of Inclusion and Intercultural Initiatives. (2017). Purpose of climate survey. Retrieved September 17, 2017, from Michigan State University College of Music website: http://music.msu.edu/diversity/purpose-of-climate-surveys

Population estimates. (2016). Retrieved September 17, 2017, from http://www.census.gov/quickfacts/table/PST045215/00

University of Nevada, Las Vegas (UNLV). (2017). Transparency in learning and teaching in higher education. Retrieved September 17, 2017, from UNLV Office of Executive Vice President and Provost website: https://www.unlv.edu/provost/teachingandlearning

Syllabus

Camille Pace

Elementary Statistics Syllabus

(3 hour credit)

Fall 2018

Math 2200

Hi! Welcome to my Math 2200 course. I am excited to help you learn Statistics. Every Monday, I will post announcements to help you keep up-to-date on information in the course.

Email me if you have questions!

WELCOME!

CRNS:80076, 80077, 80078

Instructor's Office: 256-E (Cartersville campus)

Email outside of D2L (GHC email) cpace@highlands.edu

Important Dates

Orientation Quiz and Discussion is due by Aug. 26th at 11:30 pm

Required MidtermTesting period is October 8th through 13th.

The last day to drop without penalty (W) is October 22nd, 2018

The textbook can be found under content in the Math 2200 course in D2L. Please look for Open Stax Information.

Description and Information about Math 2200

This is a basic course in statistics at a level which does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression, and correlation.

Math 2200 Online will be run through **D2L**; students, therefore, will familiarize themselves with these classroom management systems as assignments, announcements, grades and all other information will be posted there. All due date times are in Eastern Standard.

Office Hours

Sunday (Online in D2L) 7:00 pm to 9:00pm

Tuesday (Cartersville)   11:00 am to 2:00 pm

Wednesday (Online in D2L) 1:00 pm to 3:00 pm

Thursday (Cartersville)   11:00 am to 2:00 pm

I will not be online starting Friday night until Sunday afternoon.

You may use the approved calculator and websites on the exams. Proctors cannot override this policy. Students who it is found to have used or attempted to use any other items, even it a proctor errors in his or her directions, will be guilty of cheating and will receive a grade of zero on the exam. If you are caught with any notes or going to other websites, you will be given a zero and will be reported for cheating.

Any student who does not taking both exams will be assigned a grade of F. That is unless you withdraw from the class. There is no make-up for the exams. You will have only one attempt at the exam.

The midterm exam will cover Module 1 and 2. The final exam will cover Module 3 and 4.

Request for alternate proctored testing must be received in writing by the instructor by 3:00 pm on August 30th, 2018. The request will be accepted or denied at the discretion of the instructor.

PROCTORED MIDTERM INFORMATION

You can choose how you want to take the exam:

GHC Testing Center or Remote Proctor Now Software

Georgia Highlands Testing Center Information

The midterm will <u>require</u> you to make an appointment to take the final exam at one of the GHC testing centers. When I have received the information, I will email students in D2L about how to sign up.

You must bring and show your GHC Identification card or Georgia Driver's license to the testing center staff. You will only be able to bring your TI-83 or TI-84 calculator, scrap paper, and pencil into the exam.

Remote Proctor Now Testing Information

You must follow certain guidelines to use the Remote Proctor software. Please see D2L under content for more information on how to use the software.

You must download the software onto your computer and test it out in advance of the exam. There is also an agreement with all of the rules and information you must sign and turn it.

<u>Rules for the Exams</u>

The exams will be given online in D2L and are password protected. **Students will NOT be given the password.**

You may make one attempt for the final exam.

There are NO make-up for the exams. The exams may contain multiple choice, fill-in, short answer or True/False questions.

During the exam period, **you will have 120 minutes from the time that you click to begin the exam**. However, all exams must be completed by 11:30 PM on the due date. For example, you should start by 9:30 PM on the final day, if you want to full 120 minutes. Once the time expires, you can no longer submit answers.

Assignment Information

Homework

There are 14 homework assignments that can be done. Each certification is worth 10 points.

You have two attempts to complete the homework and only your highest score will be recorded in the gradebook.

The Practice Problems are not counted for a grade so you are not required to complete them. They will help you reinforce the material and will help you review for the midterm and final exam. The practice problem videos are based on these problems where I explain how I solved them.

Projects

Projects can be found in each module. Please complete them in a word document and turn them in as a docx.

You will only get one attempt on the project and it needs to be turned in under the correct folder in assignments. No emailed projects will be accepted.

The projects will help you learn the material and will help you with the midterm and final exam.

Each project is worth 10 points and need to completed by the due date listed in the course outline and turned in as a word document. If I can't open it, I can't grade it.

Discussions

Pick a topic or concept for the module that was difficult for you (If you don't have one, you can just pick one). Tell what it is, why it was difficult, and if you need any hints or help with it. The post needs to be at least four sentences long. **You only have to complete one discussion per module.** The total point value for this part is 5 points.

Since the purpose of the discussions is to interact with your classmates and increase knowledge of the subject matter, you need to comment on two of your classmates' problems. Be polite! Any negative posts will be deleted and you will lose points. You get 5 points for this part.

Please note that I will not curve any grade.

Assignments Points Breakdown

Assignment	Individual Point Value	Total Point Value
14 Homeworks	10	140
5 Discussions	10	50
Final Exam	150	150
Midterm Exam	150	150
6 Projects	10	60
Total		**550**

To get an A, you need 495 – 550 total points
To get a B, you need 440 – 494 total points
To get a C, you need 385 – 439 total points
To get a D, you need 330 – 384 total points
To get a F, you need 329 total points or less

GHC and Course Learning Outcomes

The mission of the Georgia Highlands College (GHC) Quality Enhancement Plan (QEP) is to create a curriculum-wide culture of information competency (IC) among students, which will be demonstrated through writing or other modes of communication.

Outcomes:
- The student will determine the nature and extent of information needed.
- The student will access the needed information effectively and efficiently.
- The student will evaluate information and its sources critically.
- The student will demonstrate his/her information competency through writing or other modes of communication.

Learning OutcomesThe students will use appropriate models and quantitative methods to analyze data, explore relationships among variables, and find missing information.

- Students will be able to solve equations.
- Students will be able to model problem contexts mathematically to arrive at solutions.
- Students will be able to use appropriate technology
- Students will be able to interpret data presented graphically
- Students will be able to make appropriate graphs to model data
- Students will be able to calculate and to interpret measures of central tendency, measures of variation, and measures of position
- Students will be able to interpret the meaning of statistical significance and to perform tests to determine statistical significance

How to be Successful in Math 2200

Online courses can be tough but you can succeed. Many of my past students have found that if they set aside certain days of the week to work on the content, they are able to stay on track. The course outline that is in D2L is your guide to remember what is due when. It might help to print it out and put it somewhere where you can refer to it during the semester.

Again, welcome to the course!

Math 2200 Honesty Policy:

For the Midterm and Final Exam, you must work without help from anyone {no friends, no relatives, no tutors, no other teachers and no paid consultants. You may not give help to or receive help from anyone. This includes viewing or sharing quiz or exam questions with other students in anyway audio or video.

If you are founding in violation of this policy and any written rules for assignments, you will be given a zero on the assignment or exam and reported to student affairs for cheating.Policies on student conduct and academic integrity are in the College's "Student Rights & Responsibilities" found in the Student Handbook.

I want to help as much as I can so always reach out to me with questions.

Other GHC Policies

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.

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 provide the Registrar's Office with academic reports of each student enrolled in their course(s) at checkpoints 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

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 Academic Dean 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."

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."

Financial Aid Statement:

"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."

For guidance on HB280 Campus Carry, please link to the USG website www.usg.edu/hb280.

In addition, please refer to the "Weapons" section of your student handbook at https://www.highlands.edu/wp-content/uploads/2017/08/Georgia-Highlands-2017-Web-with-Cover.pdf

Georgia Highlands College
MATH 2200 - Elementary Statistics - CRN: 80069
Fall Semester 2018 - 3 Credit Hours

Class Meets: MW 9:30 AM - 10:45 AM   Classroom: 112
Instructor: Zac Johnston   Office: 407C
E-mail: zjohnsto@highlands.edu   Phone: (678)946-1089

Office Hours*

Monday/Wednesday	Tuesday/Thursday
11:00 AM - 2:00 PM	9:30 AM - 12:30 PM

* Office hours are subject to change without notice.

Contacting the Instructor

Use the student e-mail provided by Georgia Highlands College in order to contact the instructor via e-mail. Do not e-mail through Daylight/Desire2Learn (D2L). Any message through D2L will not be seen within a timely manner. Students may call the office phone to contact the instructor, but e-mail is the most efficient and preferred method of communication. Do not expect responses between the hours of 8:00 PM and 8:00 AM.
Important: Grades will only be discussed in person.

Course Description

This is a basic course in statistics at a level that does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression and correlation.

Prerequisites

MATH 1001 or MATH 1111.

Required Materials

This course will require regular use of the Internet through D2L and OpenStax. The course will also require a TI-83 or TI-84 calculator. Please bring your own paper and pencil to class for notes.

Required Text

Introductory Statistics, 1st edition, Barbara Illowsky, OpenStax College, Rice University
    https://openstax.org/details/Introductory-Statistics

Required Technology

A computer with Internet access to complete the online homework and projects.

Attendance

Attendance will be taken each class via a sign-in sheet at the front of the class. Attendance is not for a grade. However, it is strongly recommended that each class be attended.

Any student that stops attending this course without withdrawing will receive a grade of F.

Georgia Highlands College
MATH 2200 - Elementary Statistics - CRN: 80069
Fall Semester 2018 - 3 Credit Hours

Evaluation

Grades will be kept in Daylight/D2L. The course will contain fourteen homework assignments, four exams, six projects, and one comprehensive final exam.

Homework

Homework will be assigned in D2L for most sections covered in class, and each homework grade will be worth ten points. Homework will be due on the corresponding exam date and graded by D2L. Each homework assignment will allow only two attempts.

There are practice problems for no points. These are to help prepare you to complete the homework, but are not required.

Projects

There will be six projects each worth twenty points. Project due dates will be listed under the course schedule at the end of this syllabus. Projects will be made available by the fourth week of the course. Projects are expected to be printed and turned in by 9:35 am on the due date. Anything later than that will not be considered

Exams

There will be four in class exams worth one hundred and fifty points apiece. The first four in class exams consist of short answer problems. Exams only last for a class period (9:30 am to 10:45 am). If a student is late to an exam, there will be no extra time provided. Students may only use the aforementioned calculators or the approved websites from the notes on exams.

Each problem from exams and projects will be graded on the following scale:

Score for the problem	Reason for the score
0%	Problem not attempted.
	An attempt is not rewriting the problem.
30%	Problem was attempted, but incorrect.
70%	Problem was attempted correctly overall,
	but included minor miscalculations or other errors.
100%	Problem was correct with no mistakes.

Final Exam

A comprehensive final will be given at the end of the course worth one hundred and fifty points. The final exam will be multiple choice unless the Division of Mathematics wishes to include problems for assessment. The multiple choice problems will be graded for correct answers only, no partial credit. If the division chooses to include short answer problems on the final exam, then those problems will be graded using the scale for the first four exams. The date and time for the final exam are: **17 December 2018 at 9:30 AM**.

Georgia Highlands College
MATH 2200 - Elementary Statistics - CRN: 80069
Fall Semester 2018 - 3 Credit Hours

Grades

Assignment		Total Points
Exam 1	=	150
Exam 2	=	150
Exam 3	=	150
Exam 4	=	150
Homework	=	140
Projects	=	120
Comprehensive Final	=	150
Total Points Possible	=	1010

Grade Calculation

The lowest of the five exam grades will be dropped. The final grade will be calculated based on the total points a student achieves within the course, excluding the dropped exam. Letter grades will be awarded based on the point totals below.

Grading Scale

A	=	774-860
B	=	688-773
C	=	602-687
D	=	516-601
F	=	0-516

Exam Make-Up Policy

Since one exam is dropped, there will be no make-up exams for this course without an extreme situation. If you know you will miss an exam, then the exam must be taken prior to the stated examination date to receive credit. Please e-mail the instructor to work out a new date.

Late Work

There will be no late work allowed, including homework and projects.

Withdrawing from Class

The final day to withdraw with a grade of W for a full term course is 22 October 2018.

Student Learning Outcomes

Goal: Students will use appropriate models and quantitative methods to analyze data, explore relationships among variables, and find missing information.

- Students will be able to solve equations.

- Students will be able to solve inequalities.

- Students will be able to graph functions.

- Students will be able to interpret information presented graphically.

- Students will be able to express numbers appropriately in a variety of ways based on context.

- Students will be able to rewrite algebraic expressions appropriately in a variety of ways based on context.

- Students will be able to use set notation in context.

- Students will be able to calculate rates of change using multiple representations.

- Students will be able to interpret rates of change using multiple representations.

- Students will be able to model scenarios or data mathematically to solve quantitative problems.

- Students will be able to use technology appropriately.

- Students will be able to apply logical, mathematical reasoning.

- Students will be able to interpret measures of central tendency, measures of variation, or measures of position.

- Students will be able to perform tests of statistical significance and interpret the test results appropriately.

Topics Covered

- Descriptive Statistics

- Probability Theory

- Discrete Probability Distributions

- Discrete and Continuous Probability Distributions

    - Normal distribution, Binomial distribution, t-distribution

- Correlation

- Regression

- Chi-Square

- ANOVA

- Confidence Intervals

- Hypothesis Testing

Academic Integrity

Any form of cheating, including, but not limited to, looking on another student's exam, using a graphing calculator to type messages to another student, or attempting to use a cellphone on an exam, will result in a zero on the corresponding exam for the first offense. A second offense will earn an F for the entire course, and the student will be reported to Academic Affairs.

Policies on student conduct and academic integrity are in the Colleges Student Rights & Responsibilities document. This can be accessed by including on the syllabus the following URL: http://www2.highlands.edu/site/student-rights

Cell Phones and Audio/Video Recording

Cell phones must be turned off, placed in vibrate mode, or silenced and stored throughout class and during exams. If you wish to use your phone during class for an academic purposes, prior permission from the instructor is required. Otherwise, if you need to use your phone during class (for talking, texting, or browsing the web), please leave the classroom. You may return after the completion of your conversation, as long as classroom disruptions are kept to a minimum. Prior permission must be granted from the instructor to record audio or video of the lecture.

Financial Aid Statement

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 students financial aid should be adjusted from the time they signed the withdrawal form.

Accommodations

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:

Campus	Phone Number
Cartersville	678-872-8004
Douglasville and Floyd	706-368-7536
Marietta	678-915-5021
Paulding	678-946-1029

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 provide the Registrar's Office with academic reports of each student enrolled in their course(s) at checkpoints 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

Early Grades Statement

GHC 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 Registrars Office for processing (http://www2.highlands.edu/site/registrar-forms). Please contact the Registrars Office at registrar@highlands.edu if you need any assistance.

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 Academic Dean 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.)

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.

House Bill 280 - Campus Carry

It is the permit holder's responsibility to know if carrying is allowed in a specific class, room, or building. For guidance on House Bill 280 Campus Carry, please see the USG website concerning the bill: http://www.usg.edu/hb280.

Georgia Highlands College
MATH 2200 - Elementary Statistics - CRN: 80069
Fall Semester 2018 - 3 Credit Hours

Course Schedule

Week	Monday	Wednesday
Aug 20 / Aug 22	Syllabus	Basics of Statistics and Vocabulary
Aug 27 / Aug 29	Types of Data and Sampling	Qualitative Data
Sept 3 / Sept 5	Holiday	Qualitative Data
Sept 10 / Sept 12	Exam 1	Frequency Distribution
Sept 17 / Sept 19	Descriptive Statistics	Descriptive Statistics
Sept 24 / Sept 26	Probability and Normal Distribution	Probability and Normal Distribution
Oct 1 / Oct 3	Probability and Normal Distribution	Exam 2
Oct 8 / Oct 10	Confidence Intervals (Z)	Confidence Intervals (T)
Oct 15 / Oct 17	Confidence Intervals (T)	Hypothesis Testing
Oct 22 / Oct 24	Z-Test	Z-Test
Oct 29 / Oct 31	T-Test	T-Test
Nov 5 / Nov 7	Exam 3	Chi-Square
Nov 12 / Nov 14	Chi-Square	Regression
Nov 19 / Nov 21	Holiday	Holiday
Nov 26 / Nov 28	Regression	ANOVA
Dec 3 / Dec 5	ANOVA	Exam 4
Dec 10	Review	
	Final Exam 17 December 2018 9:30 AM	

Project #	Due Date and Time
Project 1	17 September 2018 at 9:35 am
Project 2	24 September 2018 at 9:35 am
Project 3	3 October 2018 at 9:35 am
Project 4	17 October 2018 at 9:35 am
Project 5	28 November 2018 at 9:35 am
Project 6	5 December 2018 at 9:35 am

The instructor reserves the right to change the contents, which includes grading scheme and exam dates, of this syllabus as circumstances dictate. Students will be notified of changes in class and by an announcement in Daylight/D2L.

Math 2200

Kamisha DeCoudreaux

Elementary Statistics Syllabus

(3 hour credit)

Fall 2018

Hi! Welcome to my Math 2200 course. I am excited to help you learn Statistics. All the information and material needed for this course is posted on D2L.

Email me if you have questions!

WELCOME!

CRNS: 80038

Instructor's Office: 254-D (Cartersville campus)

Email outside of D2L (GHC email)
kdecoudr@highlands.edu

Important Dates

The last day to drop without penalty (W) is October 22nd, 2018.

Meeting Days & Times: Tuesday and Thursday at 11:00 am until 12:15 pm

The textbook can be found under content in the Math 2200 course in D2L. Please look for Open Stax Information.

Description and Information about Math 2200

This is a basic course in statistics at a level which does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression, and correlation.

Math 2200 Online will be run through **D2L**; students, therefore, will familiarize themselves with these classroom management systems as assignments, announcements, grades and all other information will be posted there. All due date times are in Eastern Standard.

Office Hours

Sunday (Online in D2L) 5:00 pm to 7:00 pm

Tuesday (Cartersville)   8:30 am to 10:30 am

Tuesday (Online in D2L) 3:00 pm to 5:00 pm

Thursday (Cartersville)   8:30 am to 10:30 am

Thursday (Online in D2L) 3:00 pm to 5:00 pm

You may use the approved calculator and websites on the exams. Students who are found to have used or attempted to use any other items, will be guilty of cheating and will receive a grade of zero on the exam. If you are caught with any notes or going to other websites, you will be given a zero and will be reported for cheating.

Exam procedure:

You are not allowed a phone, drinks, or other personal items near your desk when you test. Backpacks and other supplies will be set on the walls in the class during testing. No exceptions.

Request for alternate proctored testing must be received in writing by the instructor by 3:00 pm on August 30th, 2018. The request will be accepted or denied at the discretion of the instructor.

Exam Information

Please read this section. It explains all the information about exams in the course

There are 4 exams:

- **Module 1**
- **Module 2**
- **Module 3**
- **Module 4**

There will be taken in class with no make-ups.

If you miss one, you will have to take the final exam to make up for it. There are no exceptions!

If you take all 4 exams and are happy with your grade, you don't have to take the final exam.

The exams will cover information from

- **lectures**
- **homeworks**

Rules for the Exams

The exams will be given in class and have to be completed in the normal classtime.

If you are late to class, it will shorten the time you have to take it.

There are NO make-up for the exams.

I will let you know what you are allowed on the exam the class before the exam. Please make sure to be there to get the necessary information. I will NOT email it to you.

Assignment Information

Homework

There are 14 homework assignments that can be done. Each certification is worth 10 points.

You have two attempts to complete the homework and only your highest score will be recorded in the gradebook.

The Practice Problems are not counted for a grade so you are not required to complete them. They will help you reinforce the material and will help you review for the midterm and final exam. The practice problem videos are based on these problems where I explain how I solved them.

Please note that I will not curve any grade.

Late Policy

No late work is accepted in this course. Please plan accordingly and complete your work on time. Again, I will not accept any late work.

If you have a life changing event and your work is late, you have to provide documentation in your request. **I will not even consider any extension unless documentation is provided when the request is made.** Losing internet access, taking a vacation, or forgetting to do an assignment is **not** a life changing event.

I am not going to remind you of the dates. I do provide the course outline, announcements, and calendar to help you stay on track. Your success in this course is on you.

Again, I will not curve any grade including your final grade.

How to be successful in this course:

Math courses can be tough but you can succeed. Many of my past students have found that if they set aside certain days of the week to work on the content, they are able to stay on track. The course outline that is in D2L is your guide to remember what is due when. It might help to print it out and put it somewhere where you can refer to it during the semester.

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- Students will be able to interpret data presented graphically
- Students will be able to make appropriate graphs to model data
- Students will be able to calculate and to interpret measures of central tendency, measures of variation, and measures of position
- Students will be able to interpret the meaning of statistical significance and to perform tests to determine statistical significance

Assignments Points Breakdown

Assignment	Individual Point Value	Total Point Value
14 Homeworks	10	140
4 Exams	150	600
Final Exam	150	150
Attendance	60	60
Total		**800**

** See page two for information about exams**

To get an A, you need 720 – 800 total points
To get a B, you need 640 – 719 total points
To get a C, you need 560 – 639 total points
To get a D, you need 480 – 559 total points
To get a F, you need 479 total points or less

Math 2200 Honesty Policy:

For the Midterm and Final Exam, you must work without help from anyone {no friends, no relatives, no tutors, no other teachers and no paid consultants. You may not give help to or receive help from anyone. This includes viewing or sharing quiz or exam questions with other students in anyway audio or video.

If you are founding in violation of this policy and any written rules for assignments, you will be given a zero on the assignment or exam and reported to student affairs for cheating.Policies on student conduct and academic integrity are in the College's "Student Rights & Responsibilities" found in the Student Handbook.

I want to help as much as I can so always reach out to me with questions.

Other GHC Policies

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.

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 provide the Registrar's Office with academic reports of each student enrolled in their course(s) at checkpoints 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

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 Academic Dean 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."

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."

Financial Aid Statement:

"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."

For guidance on HB280 Campus Carry, please link to the USG website www.usg.edu/hb280.

In addition, please refer to the "Weapons" section of your student handbook at https://www.highlands.edu/wp-content/uploads/2017/08/Georgia-Highlands-2017-Web-with-Cover.pdf

MATH 2200 Elementary Statistics
Syllabus
Laura Ralston, Instructor

Course number, name, CRN number, and credit hours: **Math 2200, Elementary Statistics, crn 80032 and 80035, 3-0-3**

Academic Semester and Year**: Fall Semester 2018**

Meeting Days & Times: **Cartersville Campus, Academic Building**
  • **80035 Mondays & Wednesdays, 9:30 am – 10:45 am, room 222**
  • **80032 Mondays & Wednesdays 11:00 am – 12:15 pm, room 222**

Withdrawal Date (Last day to withdraw with a "W") **The last day to drop the class and possibly receive a "W" is** **Monday, October 22, 2018****. After this date, a "W" may be issued only in cases of documented hardship (which does not include performing poorly in this class). Applications for hardship withdrawal may be obtained in the center office.**

Prerequisites, if any: **MATH 1001/MATH 1111**

Course Description (from GHC Catalog): **This is a basic course in statistics at a level which does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression, and correlation.**

Instructor Name, Phone number, E-mail address, office number and office hours: **Laura Ralston, 678-872-8115, Cartersville Academic Building Room 337,** lralston@highlands.edu**;**

Days	Time
Monday	1:00 pm – 4:00 pm
Tuesday	9:00 am – 10:00 am ONLINE ONLY
Wednesday	1:00 pm – 3:00 pm 3:00 pm – 4:00 pm (College & Career Center, next to Security)
Thursday	1:00 pm – 3:00 pm ONLINE ONLY
Sunday	9:00 pm – 10:00 pm ONLINE ONLY

Other office hours are available by appointment. Office hours are subject to change without notice. Students are strongly encouraged to schedule a meeting with the instructor whenever necessary to discuss course policies or course material.

Student Learning Outcomes:

GOAL: **Students will use appropriate models and quantitative methods to analyze data, explore relationships among variables, and find missing information.**

Student Learning Outcomes[1]

- **Students will be able to solve equations.**
- **Students will be able to interpret information presented graphically.**
- **Students will be able to calculate rates of change and interpret its meaning using multiple representations.**
- **Students will be able to model scenarios or data mathematically to solve quantitative problems.**
- **Students will be able to use technology appropriately.**
- **Students will be able to apply logical, mathematical reasoning.**
- **Students will be able to interpret measures of central tendency, measures of variation, or measures of position.**

Grading System: **Grade in the course will be determined using a point-based system involving several categories of assessments:**

Homework in D2L (14)	10 points each	140 points total
BEST four of five exam grades (includes 4 module exams and comprehensive final exam)	150 points each	600 points total
Projects in D2L (6)	10 points each	60 points
GRAND TOTAL		800 possible points total

 A letter grade will be assigned based on the total number of points that you earn. The following scale will be used:

Course Grade	Your Total Points
A	720-800
B	640-719
C	560-639
D	480-559
F	Below 479

The official course grades in the course are those posted in the Desire To Learn (D2L) grade book. However, these grades will vary on a continuous basis as your professor adds in scores that you have earned and updates grading formula. Your final official course grade will only be reported in the GHC Banner system at the end of the term.

Students who simply quit attending class without officially withdrawing will receive a grade of F% in the course.

Students should bring a TI-83 Plus or equivalent to all class sessions.

Homework: **Homework for this course is within the Desire to Learn (D2L) learning management system.   Within D2L, select Assessments, Quizzes.   There are 14 homework assignments to be completed. Each assignment is worth 10 points. You have TWO attempts to complete the homework. Only the highest score will be recorded in the gradebook.**

There are also Practice Problems within D2L under Assessments, Quizzes, scroll down to bottom of list. These practice problems are NOT for a grade and you are not required to complete them. However, these practice problems will help to reinforce the material and help you review for the module exams and final exam.

Projects: **There are 6 projects throughout the modules in D2L. You have only one attempt to complete each project. Each completed project is worth 10 points and will be submitted in hard copy format to the instructor. The projects are intended to help you apply the material you are learning**

Module Exams/Final Exam: **There will be a written in-class exam, with the exception of Module 3 exam, for each module. Each module exam is worth 150 points. The module exams will cover information from lectures, homework, and projects. The final exam will be comprehensive and cover material from all four modules. The final exam is worth 150 points. If you take all 4 module exams and are happy with your overall course grade, you have the option to forego the final exam.**

Late Work Policy: **No late work is accepted in this course. Please plan accordingly and complete your work on time. No late work will be accepted. If you have a life changing event and your work is late, you have to provide documentation in your request. An extension will not be considered unless documentation is provided when the request is made. Losing internet access, taking a vacation, or forgetting to do an assignment is not a life changing event. Please use the course outline, announcements, and calendar to help you stay on track.**

Attendance Policy: **Students are expected to attend each and every scheduled class session. Since lectures begin promptly at the scheduled time, students are encouraged to avoid arriving late to class. Roll will be taken at each class session. There is no distinction between "excused" and "unexcused" absences.**

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% (5 class meetings) 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.)**

Early Warning Program: **Georgia Highlands College requires that all faculty members report their students' progress throughout 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 provide the Registrar's Office with academic reports of each student enrolled in their course(s) at checkpoints**

- **Attendance   Thursday, August 30, 2018**
- **Course Progress (S/U)   Monday, October 1, 2018**
- **Withdrawal Deadline   Monday, October 22, 2018**

Textbooks and other required books, supplies, supplementary materials, etc.

- **FREE Online Textbook:** OpenStax Introductory Statistics
  https://openstax.org/details/introductory-statistics This text can be

accessed online, downloaded as a PDF, or downloaded as html files for FREE. Students can also purchase a low-cost physical copy of the text directly from the publisher.

- **TI-83 or TI-84 Calculator:** Students are required to use their calculator while participating in lecture, on homework, tests, and final exam.
  Each student taking this course needs access to a TI-83 or equivalent graphing/scientific calculator. Students will use their calculator while participating in class, taking exams, and completing homework exercises. Please note that sharing calculators during graded assignments is not permitted.

- **Access to Desire to Learn, e-mail and Internet resources---*Your GHC email account is the official form of communication***

Course Outline (Course Contents): **This course will cover selected sections in Chapter 1: Sampling and Data, Chapter 2: Descriptive Statistics, Chapter 3: Probability Topics, Chapter 6: The Normal Distribution, Chapter 8: Confidence Intervals, Chapter 9: Hypothesis Testing with One Sample, Chapter 11: The Chi-Square Distribution, Chapter 12: Linear Regression and Correlation, and Chapter 13: The F-Distribution and One-Way ANOVA**

Assignments: **Assignments will be given in class, e-mailed to you, and provided on the web as a separate document, at the discretion of the instructor. You are expected to STUDY, to work problems, to read the assigned material and to come prepared to class. An opportunity to ask questions will be provided each class meeting.**

Policies on student conduct and academic integrity: **Cheating (or even the appearance of cheating) will not be tolerated in this course. If the instructor suspects a student of cheating, the instructor will notify the student of the allegations outside of class. Then, the allegations will be referred to the Director of Student Life for appropriate action. The procedures and penalties implemented both by the instructor and the Director of Student Life shall be in accordance with the college's Academic Integrity Policy, which can be accessed at the following URL:**

http://www.highlands.edu/site/student-rights

Disability Statement: **If you feel that you need accommodation(s) due to a disability, please feel free to discuss this with me early in the semester. Georgia Highlands College has resources available for students with certain disabilities. Accommodations (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) may be made through Student Support Services (SSS) on all campuses. For more information, please contact 706-295-6336.**

http://www.highlands.edu/site/sss-disability-support

Financial Aid Statement: **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 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.

Children on Campus Policy: **Children of currently enrolled students are allowed on campus only with the direct supervision of that parent. Children will not be allowed to roam the campus or be left unattended by their parent at any time nor at any location. Children may be present in an academic class or lab only with the advanced permission of the instructor. The attending parent will assume responsibility for the behavior of the child. Children are to follow the same conduct rules of reasonable behavior that apply to regular Georgia Highlands students.**

http://www.highlands.edu/site/policy-and-procedure-manual-section-7-ii

Weapons Policy: (from the GHC Student Handbook) **Using or possessing a weapon on campus or at a college-sponsored activity, without authorization is prohibited. A weapon may mean any object or substance designed to inflict an injury or incapacitate another person. A weapon may be a firearm, a knife or any object or device designed for offense or defense; or other item considered as a weapon by local, state or federal statutes.**

O.C.G.A § 16-11.127.1 allows valid firearms license holders (aged 21 and over) to store weapons in a motor vehicle parked on campus if the weapon is kept in a locked compartment, locked container, or locked firearms rack within the vehicle.

Effective July 1, 2017, HB 280 Amended O.C.G.A § 16-11.127.1 to allow for concealed carry for valid firearms license holders (aged 21 and over) and the ability to carry handguns in some areas on college campuses. It is the responsibility of the holder of the valid firearms license to understand and comply with the established legal restrictions that prohibit possession of a firearm in specific college areas, rooms, offices, or buildings specified in the Amended Code. For further guidance on HB 280 Campus Carry, visit: http://www.usg.edu/hb280

HB 792 Exception: Any person who is 18 years of age or older or currently enrolled in classes on the campus in question and carrying, possessing, or having under such person's control an electroshock weapon while in or on any building or real property owned by or leased to such public technical school, vocational school, college or university or other public institution of postsecondary education; provided, however, that, if such person makes use of such electroshock weapon, such use shall be in defense of self or others. The exemption under this paragraph shall apply only to such person in regard to such electroshock weapon. As used in this paragraph, the term 'electroshock weapon' means any commercially available device that is powered by electrical charging units and designed exclusively to be capable of incapacitating a person by electrical charge, including, but not limited to, a stun gun or Taser as defined in subsection (a) of Code Section 16-11-106.

https://www.highlands.edu/wp-content/uploads/2017/08/Georgia-Highlands-2017-Web-with-Cover.pdf   (page 59)

Tobacco Free Campus Policy: **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, e-Cigarettes, cigars, smokeless tobacco, snuff, chewing tobacco, etc.) while on GHC property.**

Early Grades Statement: **Georgia Highlands College offers a variety of part-term classes to allow 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 become available on the official college transcript. After each part-of-term, as soon as instructors have entered grades, they may be viewed online through SCORE. Transcripts may also be requested at any time by logging into SCORE. Prior to end of term, if a student needs an early grade letter sent to another institution, student may complete a request form and submit it to the Registrar's Office for processing. Please contact Registrar's Office at registrar@highlands.edu if you need any assistance.

http://www.highlands.edu/site/registrar-forms

Other: **Please turn cell phone on *VIBRATE.***

Note: **We will have a lot of material to learn in this course and we will have to move swiftly. Do NOT fall behind. Be sure to take advantage of the Tutorial Center if you need it. Other classmates will also prove to be valuable resources.**

NO FOOD OR DRINK IS ALLOWED IN ANY GEORGIA HIGHLANDS CLASSROOM.

The instructor reserves the right to change the above plans as circumstances warrant.

THE INSTRUCTOR RESERVES THE RIGHT TO ALTER THE FOLLOWING SCHEDULE AS NECESSARY	Georgia Highlands College MATH 2200 Class Assignments	Section CRN 80046 Fall 2018, Douglasville Instructor: Brent Griffin Textbook: *Introductory Statistics*, Barbara Illowsky, Susan Dean, OpenStax College, Rice University
Date	Sections	Test Dates and Book-based Homework Assignments are below. Page numbers refer to the PDF page number in upper left corner of the PDF reader for the PDF version of the textbook posted in D2L. You may enter the number and jump directly to the page with the questions. Graded homework assigned online within D2L.
August 20, 2018	Review Class Policies and Syllabus	Send Mr. Griffin an email verifying that you reviewed the syllabus and class schedule in D2L. Gain access to WebAssign and the eBook.
August 22, 2018	Sec. 1.1	p. 60 42-52 all
August 27, 2018	Sec. 1.2 Sec. 1.3	p. 61 53-64 all, 71-73 all p. 64 80-86 all
August 29, 2018	Sec. 1.4 Sec. 2.1	p. 67 87-89 all p. 147 74, 75
September 3, 2018	**Labor Day Holiday**	**No Class**
September 5, 2018	Sec. 2.2	p. 150 76-81 all
September 10, 2018	Sec. 2.3 Sec. 2.4	p. 140 23-33 all, 31 and p. 154 82, 83 p. 155 84-87 all
September 12, 2018	Sec. 2.5 Sec. 2.6	p. 141 43-48 all p. 142 52-64 all
September 17, 2018	**Review for Exam #1**	**Study for the Exam**
September 19, 2018		**EXAM #1**
September 24, 2018	Sec. 2.7	p. 145 69-72 all and p. 160 104, 105
September 26, 2018	Sec. 3.1	p. 223 2-5 all, 12-23 all, p. 234 101-104 all
October 1, 2018	Sec. 6.1 Sec. 6.2	p. 393 8-39 all and p. 397 63, 64, 66 p. 395 48-59 all and p. 398 70-72 all, 79
October 3, 2018	Sec. 7.1 Sec. 8.1	p. 435 1-6 all and p. 439 63, 64, 65 p. 485 6-22 all and p. 491 96, 97

THE INSTRUCTOR RESERVES THE RIGHT TO ALTER THE FOLLOWING SCHEDULE AS NECESSARY	Georgia Highlands College MATH 2200 Class Assignments	Section CRN 80046 Fall 2018, Douglasville Instructor: Brent Griffin Textbook: *Introductory Statistics,* Barbara Illowsky, Susan Dean, OpenStax College, Rice University
Date	Sections	Test Dates and Book-based Homework Assignments are below. Page numbers refer to the PDF page number in upper left corner of the PDF reader for the PDF version of the textbook posted in D2L. You may enter the number and jump directly to the page with the questions. Graded homework assigned online within D2L.
October 8, 2018	Sec. 8.2	p. 487 38-48 all and p. 494 105, 106, 107
October 10, 2018	**Review for Exam #2**	**Study for the Exam**
October 15, 2018		**Exam #2**
October 17, 2018	Sec. 9.1 Sec. 9.2	p. 545 8, 9 and p. 549 65 p. 545 11-20 all and p. 549 68-71 all
October 22, 2018	Sec. 9.3 Sec. 9.4 **Monday, October 22, 2018 is the last day to withdraw without grade penalty from a full-session Fall 2018 course.**	p. 545 21-25 all and p. 550 72 p. 546 32-40
October 24, 2018	Sec. 9.5	p. 547 48-61 excluding 51 and 57 p. 551 74-80 all, 85 p. 554 101, 102, 104, 112, 113, 115, 116
October 29, 2018	Sec. 11.1 Sec. 11.2	p. 660 1-13 all and p. 666 69-73 all, 77
October 31, 2018	**Review for Exam #3**	**Study for the Exam**
November 5, 2018		**Exam #3**
November 7, 2018	Sec. 12.1 Sec. 12.2 Sec. 12.3	p. 721 4-8 all, 10-16 all p. 723 17-19 all and p. 728 59, 60 p. 724 20-27 all and p. 729 64-66 all
November 12, 2018	Sec. 12.4 (Method 2 Only) Sec. 12.5 Sec. 12.6	p. 729 67, 68 p. 725 31-35 all and p. 732 70, 72 p. 727 51-54 all and p. 735 74, 76, 77, 79

THE INSTRUCTOR RESERVES THE RIGHT TO ALTER THE FOLLOWING SCHEDULE AS NECESSARY	Georgia Highlands College MATH 2200 Class Assignments	Section CRN 80046 Fall 2018, Douglasville Instructor: Brent Griffin Textbook: *Introductory Statistics*, Barbara Illowsky, Susan Dean, OpenStax College, Rice University
Date	Sections	Test Dates and Book-based Homework Assignments are below. Page numbers refer to the PDF page number in upper left corner of the PDF reader for the PDF version of the textbook posted in D2L. You may enter the number and jump directly to the page with the questions. Graded homework assigned online within D2L.
November 14, 2018	Review Regression and Correlation	Continue with problems above
November 19, 2018	**Thanksgiving Holiday**	**No Class**
November 21, 2018	**Thanksgiving Holiday**	**No Class**
November 26, 2018	Sec. 13.1 Sec. 13.2	p. 764 9-23 all
November 28, 2018	Sec. 13.3	p. 764 24-39 all
December 3, 2018	**Review for Exam #4**	**Study for the Exam**
December 5, 2018		**Exam #4**
December 10, 2018	**Last Day of Class** **Review for Final Exam**	**Study for the Final Exam**
December 12, 2018	**Final Exam**	**11:00 am - 1:30 pm**

Georgia Highlands College
Course Syllabus
MATH 2200, Elementary Statistics
CRNs: 80046 and 80063
Fall Semester 2018
Brent Griffin, Instructor

Course: MATH 2200, Elementary Statistics, 3-0-3

CRN 80046, Monday/Wednesday, 11:00 am -12:15 pm

Room 132, Douglasville Instructional Site

CRN 80063, Tuesday/Thursday 11:00 am - 12:15 pm

Room G-106, Marietta Instructional Site

Course Description:

This is a basic course in statistics at a level which does not require knowledge of calculus. Statistical techniques needed for research in many different fields are presented. Course content includes descriptive statistics, probability theory, hypothesis testing, ANOVA, Chi-square, regression and correlation.

Prerequisites: MATH 1001 or MATH 1111

Instructor: Brent Griffin

Office Location and Office Hours:

Marietta Instructional Site Location: **Norton Hall 224**
Douglasville Instructional Site Location: **Hub Area Faculty Office**

Instructional Site	Days	Office Hour Times
Douglasville Site	Monday & Wednesday	10:00 am – 11:00 am 3:15 pm – 4:15 pm
Marietta Site	Tuesday & Thursday	7:30 am – 8:00 am 9:00 am – 11:00 am 12:15 pm – 1:00 pm

Please note that additional office hours are available by appointment. Students are strongly encouraged to schedule meetings with the instructor to discuss class policies or course material.

Contact Information:

Direct Number to Mr. Griffin's Office Norton Hall 224, Marietta Site	678.872.8524
Marietta Site	678.872.8501
Douglasville Site	678.872.4200
Mathematics Division, Cartersville Site	678.872.8099 or math@highlands.edu
Email Address	bgriffin@highlands.edu
Web Address	http://www.highlands.edu/site/faculty-Brent-Griffin

Textbook:

Introductory Statistics, 1st edition, Barbara Illowsky, Susan Dean, OpenStax College, Rice University

> Link to free textbook: *https://openstax.org/subjects/math*

> Note that the printed textbook is optional, but is available from the GHC bookstore or directly from OpenStax.

Required Technology: Access to D2L Homework

TI-83/84 or equivalent graphing calculator

Access to Microsoft Excel

Calculator Requirement:

Each student taking this course needs access to a TI-83/84 or equivalent graphing calculator. Students will use their calculator while participating in class, taking exams, and completing homework exercises.

Please note that sharing calculators during graded assignments or exams is not permitted. Additionally, the instructor will not loan calculators to students during in-class, graded assignments.

Course Content:

Selected sections from chapters 1-13. (Please refer to the Homework Assignment List/Class Schedule for more specific information regarding course content.)

Grading Policies:

Four exams, two take-home projects and a comprehensive final exam will be given during the semester. Each exam will count 100 points, each take-home project will count 50 points and the comprehensive final exam will count 200 points.

In addition, students are required to complete homework assignments within D2L worth an additional 100 points.

Students' averages for the semester will be based on a total of 800 points (400 points from the exams, 100 points from the take-home projects, 200 points from the final exam, and 100 points from the WebAssign homework). The grading scale is as follows:

> A: 90% or above
>
> B: 80%—90%
>
> C: 70%—80%
>
> D: 60%—70%
>
> F: Below 60%

Students are encouraged to retain copies of all graded coursework returned during the semester. The coursework will aid students in preparing for the final exam and will serve as evidence of academic performance throughout the semester.

The instructor retains the prerogative of altering the above plans as circumstances dictate.

Class Attendance, Homework, Make-up Exams and Exam Replacement Policy:

Students are **expected** to attend each and every scheduled class session. Since lectures begin promptly at the scheduled time, students are encouraged to avoid arriving late to class. Roll will be taken at the beginning of each class session.

Homework may be assigned from the textbook and through D2L. The D2L homework is an important part of students' grades for the semester. Completing the book-based homework provides students with additional practice focused on preparation for the exams.

Exam dates are scheduled early in the semester, and students are required to test on the established dates. Students who know well in advance that they will be absent on a scheduled exam date may request to take an exam early. **Otherwise, students absent for an exam will be allowed to make up the work only under extreme circumstances. In other words, make-up exams will not be administered if students do not contact the instructor <u>IN ADVANCE</u> of the originally scheduled exam date and receive permission to test on a different day.**

Again, students must make alternate arrangements with the instructor <u>PRIOR TO THE SCHEDULED EXAM DATE</u>.

At the end of the semester all students have the option of replacing their lowest exam grade (including any missed exams) with their percentage average on the comprehensive final exam. If a student misses an exam without making arrangements with the instructor in advance, that exam grade will be replaced by the final exam average. **At most one exam grade will be replaced.** The instructor will automatically apply this replacement policy, if it positively impacts a student's average, when calculating final grades.

Students will receive a grade of **<u>zero</u>** for additional missed exams (i.e., for exams missed beyond the first one without making arrangements with the instructor in advance).

The D2L homework grade and the take-home project grades will not be replaced under any circumstances.

While homework may be completed after the due date for full credit, the final day and time to access homework within D2L is 11:59 pm on Wednesday, December 12, 2018.

Take-home projects submitted after the due date will be accepted, if the key to the project has not been posted online. After the key to a project is posted, the project will no longer be accepted for a grade. The final grade for the any late project will be reduced by 20% of the total number of points available for the project for each class session the project is late. For example the final grade for a project worth 50 points turned in two class sessions late would be reduced by 20 points (20% of 50 multiplied by 2).

Uncompleted take-home projects will count as a zero in the calculation of students' averages.

Additional Academic Policies:

Students are strongly encouraged to use computer software, Internet resources, and calculators throughout this course. Students must check GHC email and D2L, the college's learning management system, on a regular basis. Course information, take-home assignments, review sheets for exams, and exam keys will be distributed using email and online resources.

If a student stops attending class without officially withdrawing, the student will receive a grade of F or F\$ in the class.

The last day for officially withdrawing from any class without grade penalty is published by the college Registrar's office. Withdrawals without grade penalty after the published withdrawal date are subject to approval by the Vice President for Academic Affairs and will be issued only in cases of extreme emergency or hardship.

The last day to withdraw from a full session course Fall Semester 2018 is Monday, October 22, 2018.

Student Learning Outcomes:

Students completing this course should satisfy the following general education goal and learning outcomes.

Goal: Students will use appropriate models and quantitative methods to analyze data, explore relationships among variables, and find missing information.

Student Learning Outcomes:

- Students will be able to solve equations.

- Students will be able to solve inequalities.

- Students will be able to graph functions.

- Students will be able to interpret information presented graphically.

- Students will be able to express numbers appropriately in a variety of ways based on context.

- Students will be able to rewrite algebraic expressions appropriately in a variety of ways based on context.

- Students will be able to use set notation in context.

- Students will be able to calculate rates of change using multiple representations.

- Students will be able to interpret rates of change using multiple representations.

- Students will be able to model scenarios or data mathematically to solve quantitative problems.

- Students will be able to use technology appropriately.

- Students will be able to apply logical, mathematical reasoning.

- Students will be able to interpret measures of central tendency, measures of variation, or measures of position.

- Students will be able to perform tests of statistical significance and interpret the test results appropriately.

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 provide the Registrar's Office with academic reports of each student enrolled in their course(s) at checkpoints 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

Posting Grades to Academic History/Requesting Early Grades:

GHC 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 requested 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 if you need any assistance.

Time Limits on Exams:

Students are expected to complete the in-class exams in a timely fashion. It is imperative that students prepare adequately in advance of the exams in order to work quickly and efficiently during the tests. Students will have 1 hour 15 minutes to complete the in-class exams and 2 hours 30 minutes to complete the final exam. After time has elapsed the instructor will inform students that time has expired for the exam and allow an additional five minutes for students to finish their work and turn in their papers. **Exams not turned in by the end of the five minute time-frame will not be accepted by the instructor, resulting in a grade of zero being issued for the exam.**

Students will not be allowed extra time to complete exams or other in-class graded assignments without documentation regarding a disability from the college's Disability Support office (Student Support Services). For more information regarding the Disabilities Support, please see the paragraph later in this document.

Academic Dishonesty:

Cheating will not be tolerated in this class. If the instructor suspects a student of cheating, the instructor will notify the student of the allegations outside of class. The allegations will be referred to Student Life for appropriate action. The procedures and penalties implemented both by the instructor and Student Life shall be in accordance with the college's Academic Integrity Policy. The policy can be accessed on-line at

http://www.highlands.edu/site/academic-integrity-documents

Student Rights and Responsibilities, Conduct, and Judicial Affairs:

Students are bound by the GHC Student Code of Conduct, available at

https://www.highlands.edu/student-life/judicial/

Cell Phone & Audio/Video Recording Policies:

Cell phones must be turned off, placed in vibrate mode, or silenced and stored throughout class and during exams. If you wish to use your phone during class for an academic purpose, prior permission from the instructor is required. Otherwise, if you need to use your phone during class (for talking, texting, or browsing the web), please leave the classroom. You may return after the completion of your conversation, as long as classroom disruptions are kept to a minimum.

Use of cameras, including cell phone cameras and other video and audio recording devices, during class is prohibited without prior permission from the instructor.

Student Support Services (Disability Support):

If you need an 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 678-872-8505; Paulding 678-946-1029.

Tobacco Policy (GHC is a 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.

Special Note to Students Receiving 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**. <u>Students who have earned at least one passing grade for the semester will not be affected by this regulation</u>. 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.

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 Academic Dean is required <u>before any course assignments can be completed while missing class</u>. 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.

Inclement Weather Policy and Emergency Closings:

When inclement weather creates a condition under which there might be a question of whether the College will operate on a normal basis, the President, or a designated official will release to each campus and local news media a statement concerning the College schedule. If the weather condition occurs during working hours, the statement will be released through normal distribution channels on campus. Media statements regarding the college's schedule may also be distributed through the school website, GHC Notify, or on local radio and television stations.

Weather-related and other emergency closing information will be posted at http://www.highlands.edu. Students may also sign up for an online or text messaging emergency alert system through www.highlands.edu/connect.

Children on Campus Policy:

Children of currently enrolled students are allowed on campus only with the direct supervision of that parent. Children will not be allowed to roam the campus or be left unattended by their parent at any time nor at any location. Children may be present in an academic class or lab only with the advanced permission of the instructor. The attending parent will assume responsibility for the behavior of the child. Children are to follow the same conduct rules of reasonable behavior that apply to regular Georgia Highlands students. http://www.highlands.edu/site/policy-and-procedure-manual-section-7-ii

Weapons Policy:

For guidance on HB280 Campus Carry, please link to the USG website www.usg.edu/hb280.

In addition, please refer to the "Weapons" section of your student handbook at

https://www.highlands.edu/wp-content/uploads/2017/08/Georgia-Highlands-2017-Web-with-Cover.pdf

> Excerpt from GHC Student Handbook – Code of Conduct: List of prohibited actions/behaviors
>
> Using or possessing a weapon on campus or at a college-sponsored activity, without authorization. A weapon may mean any object or substance designed to inflict an injury or incapacitate another person. A weapon may be a firearm, a knife or any object or device designed for offense or defense; or other item considered as a weapon by local, state or federal statutes.

O.C.G.A § 16-11.127.1 allows valid firearms license holders (aged 21 and over) to store weapons in a motor vehicle parked on campus if the weapon is kept in a locked compartment, locked container, or locked firearms rack within the vehicle.

Effective July 1, 2017, HB 280 Amended O.C.G.A § 16-11.127.1 to allow for concealed carry for valid firearms license holders (aged 21 and over) and the ability to carry handguns in some areas on college campuses. It is the responsibility of the holder of the valid firearms license to understand and comply with the established legal restrictions that prohibit possession of a firearm in specific college areas, rooms, offices, or buildings specified in the Amended Code.

HB 792 Exception: Any person who is 18 years of age or older or currently enrolled in classes on the campus in question and carrying, possessing, or having under such person's control an electroshock weapon while in or on any building or real property owned by or leased to such public technical school, vocational school, college or university or other public institution of postsecondary education; provided, however, that, if such person makes use of such electroshock weapon, such use shall be in defense of self or others. The exemption under this paragraph shall apply only to such person in regard to such electroshock weapon. As used in this paragraph, the term 'electroshock weapon' means any commercially available device that is powered by electrical charging units and designed exclusively to be capable of incapacitating a person by electrical charge, including, but not limited to, a stun gun or Taser as defined in subsection (a) of Code Section 16-11-106.

In Conclusion:

As your instructor, it is my responsibility to organize and teach this course to the best of my ability. Please feel free to ask questions about the course material and course policies in class, during office hours or by email.

As a student, it is your responsibility to prepare for and attend class, complete homework assignments and projects in a timely fashion, study for exams, ask questions in class, and seek tutorial assistance outside of class as necessary. It is also your responsibility to display respect for your classmates by maintaining a professional, non-disruptive attitude during class.

If you have any questions, comments, or concerns during the semester, please communicate with me by email, phone or in person.

Final Report

Affordable Learning Georgia Textbook Transformation Grants

Final Report

Date: December 21, 2018

Grant Number: 356

Institution Name: Georgia Highlands College

Team Members: (All from Georgia Highlands College)

Project Lead: Camille Pace, Assistant Professor of Mathematics, cpace@highlands.edu

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Course Name and Number: Elementary Statistics (Math 2200)

Semester Project Start Date: Spring 2018

Semester of Implementation: Fall 2018

Average Number of Students Per Course: 23

Number of Courses Assessed: 18

Number of Students Effected by Implementation: 407

1. Narrative

A. Key Outcomes

The purposes of this project were to outline, develop and implement an open educational resource (OER) for the Elementary Statistics course (Math 2200), at Georgia Highlands College, a course covering introductory topics in Statistics. This course is a suggested course for our

undergraduate non-stem majors, a required course for GHC's BBA, BSN and BSDH majors, and serves as a popular elective for our business administration and general studies students.

The selection of an OER was easy identified due to the previous work with ALG Open Mathematics grants. Some of the previous material developed by two of the previous participants in that grant were used to develop the new material for this grant. With an emphasis on no-material costs for the course, the two subject matter experts and instructional designer worked to assemble a collection of scholarly resources, focused on new power points, extra notes, closed-captioned videos, practice problems and homework problems to give students a multimodal learning system. The bulk of our manually constructed OER aligned with the Open Stax book, Introductory Statistics, https://openstax.org/details/books/introductory-statistics. The librarian for this grant was able to post most materials, excluding the practice and homework problems, to a libguide for easier reference. This course overhaul involved creating a robust D2L course so that it could be used in face to face and online courses. A primary goal was to create practice and homework problems that were included with the material so students didn't have to purchase a third party software. The grant also focused on developing the course to use free websites to solve the practice and homework problems and negating the use of the expensive TI-83 or TI-84 calculator. Both of these cost saving measures meant students could begin the course on the first day of class with no additional costs.

The newly constructed practice problems were created using the quiz format in D2L and were paired with a video showing the steps on how to complete at least one of the problems in all fourteen submodules. Additionally, homework problems were created using the quiz format and provided numerous versions for students to test their knowledge in the fourteen submodules. The project lead was able to help troubleshoot any issues through email and video tutorials to help the faculty feel comfortable with them.

The course was divided into four modules to help improve the understanding and connections of the topics. Within each module, the material was broken down by overall introduction to the topics, projects and discussions, submodule material, and conclusion. Here is the modules with submodules:

Module 1: Basic of Statistics, Statistics Vocabulary, Types of Data, Sampling Techniques, and Qualitative Data

Module 2: Frequency Distributions, Descriptive Statistics, Probability and Normal Distribution

Module 3: Confidence Intervals (Z-interval), Confidence Intervals (T-interval), Hypothesis Testing and One Mean Z-test, and One Mean T-test

Module 4: Chi-Square Goodness of Fit, Linear Regression, and Analysis of Variance (ANOVA)

Each submodule was broken into four parts to help students understand the flow of the material and provide consistency: Submodule Introduction, Power Points and Extra Notes for

Submodule (including closed-captioned videos), Practice Problems for Submodule (including closed-captioned videos), and Homework for Submodule.

B. Challenges and Accomplishments

The course design, by the course designer and two Mathematics professors, was user friendly and written to be ADA compliant. Consistency was used in the design process to help students navigate the course. The challenges were numerous and were often unexpected but we were able to recover. D2L can be cumbersome to use if not familiar with it. The actual course set-up was easy but building the homework and practice quizzes was difficult. It is a precise activity and easy to make mistakes which complicate student's understanding due to typos or wrong answers. We did have someone test the homework prior to implementation but realized that they were not able to complete every problem due to randomization. The format of the advanced homework problems challenged the students and many of them were not familiar with solving problems in multiple steps. It was unfortunate since these problems were designed as a check to accompany the process map. For students who didn't invest the required time in the course, they struggled more than previous semesters. I feel that when we used Web Assign, many students googled the answers to the questions and didn't learn the concepts. By creating these problems, they had to rely on their own knowledge. Another issue was the homework had two attempts and would not give the answers of what the students missed. It was not a huge issue until the advance statistical methods when small mistakes can make a huge impact on the rest of the problems. In the future, we will make the homework more precise so they can see the exact problem they miss and can correct it. One issue was the unpreparedness of the students as the material got harder. When concepts were re-visited in the last sections, students scrambled to recall the material. We are not sure if it is students' lack of understanding the material initially or rushing through the material just to get it done. While it has happened in the past, it was very apparent on the projects and exams. One final challenge was the use of the free websites. One of the ANOVA websites we were using began to not accept data it had previously accepted. We were able to quickly identify a new one and have the students use it. It would be wonderful to create our own websites but that is time and cost prohibitive.

While there were challenges, there were many accomplishments, as well. Being able to provide the students with a no-cost course was extremely gratifying. Students were able to start working on material the first week of class which made an impact on the online courses. The quality of the material was excellent and gave students a solid reference outside the textbook. The videos made helped with providing conceptual materials as well as examples. Students often remarked in the discussions about how the videos helped them. We have never used a standardized set of flowcharts for the advance statistical methods in the past but added them to the redesigned course. Each flow chart was color-coded to the type of the statistical tests and had the various steps that were needed to solve the problems. They have been used often

by the students to understand the concepts and the homework. Students didn't complain about the workloads in the courses which was often the case in previous course surveys.

The course and practice problems from the course management system were replicated into a public facing website. Students can navigate the content and receive feedback from the practice problems without a password or being enrolled. For instructors, this course is freely available for use and adaption through Springshare's Library Guides community platform. Library Guides is a common content management system used throughout academic libraries so the course should be widely accessible. Being available to the academic community and free to any student allows this course to have a wide reach:

https://getlibraryhelp.highlands.edu/math2200

C. Transformative Impact for the Instruction

While the students' viewpoint is extremely important, we also wanted to get feedback from faculty teaching the course. Our pilot group of six faculty members teaching the course for the ALG grant were required to complete a survey after each module to give feedback on their experiences. The sample size was very low with 17 responses with the threshold for satisfied was recorded as "satisfied" and "somewhat satisfied"

Faculty Feedback:

Each faculty member was given the same survey four different times in throughout the semester. All of the faculty accessed the homework created and most used the power points. The projects, videos, and textbook were not used by everyone but were not necessary to use based on how the course was built.

Homework and Practice Problems: The overall satisfaction for the homework was 76.5% with some concerns about students not being able to see their answers and multiple-choice format that were difficult to display the entire problem. To help fix these problems, faculty could show the students the answers for the homework if they wanted to. Since the multiple-choice format of the questions was difficult to fix in a live environment, new questions have been redesigned for Spring 2019 and the old questions will be added to the practice problems. In future semesters, the midterm and final exams will be used in one semester and then turned into homework problems for the next semester. This practice will increase the homework question bank and keep the integrity of the exams. Questions were not asked in the survey about the practice problems which was an oversight. Most faculty are using them as a non-graded assignment for students to feel more comfortable with the material.

Power Points: 94% of the faculty were satisfied with the power points. Since we were teaching the same material we had previously taught, faculty could have used their own personalized power points if they desired.

Videos: 82% of the faculty were satisfied with the videos. The videos were design to supplement the online courses but were offered to anyone for use. More videos were added throughout the semester based on student discussions, student emails, and faculty survey feedback. This practice helped fill in the gaps that were not apparent when the course was being built.

Textbook: The opinions about the textbook were varied with the range from satisfied to dissatisfied. The textbook was mainly a back-up reference to all the other material. Most of the homework and practice problems were from the textbook with different versions of problems being created. This textbook has always had mixed reception in the Mathematics department at GHC.

Website and Calculator: The use of the free websites was popular with some faculty but not used with other faculty. For the online courses, the faculty gave the choice to use either tools. Some faculty only wanted to use the calculator and Excel to teach the material. There was one slight issue with the ANOVA website not working for some of the problems. A new website was discovered and passed along to students and faculty.

Pacing of the Course: The course was built in the four modules to help with the format of four exams. Most faculty, 64.7% found the pacing of the course acceptable while the other group found the pacing of the course too slow. Many faculty felt that the first Module was too little material to test on so they included parts of Module Two. In the future, faculty can change the submodules to make their own modules so they can dictate the flow of material.

Faculty Quotes about Student Performance:

Faculty is the best gauge of how well the course is running on the different sites and instructional formats. One question on the survey ask, "How are your students doing in the course compared to previous semesters with other material?". Here are some of the responses which showed that there was not definite answer about if the new course material was successful:

"Overall, just a bit worse than previous semesters. Granted this could be due to me adjusting to the order and set up of the course."

"Better, I have been able to stay on or ahead of schedule."

"The students had a slightly tougher time with this test, but that is mostly due to the adjustment for being asked how and what the numbers meant. It was about a 5% decrease in scores from spring."

"The students have similar grades on the first exam compared to previous semesters teaching."

"My students did slightly better on the Module 1 test than my previous course students."

"My students did better on Module 1 and Module 2. However, they seems to be doing worse on Module 3."

D. Transformative Impact for the students and their performance

Student Feedback:

Each faculty member was asked to give a standardized survey to their students. Responses was voluntary and extra credit could be awarded if the faculty felt strongly about it. The overall sample size was 227. Again, we narrowed the definition of satisfied to include only responses as "satisfied" and "somewhat satisfied".

Homework and Practice Problems: The overall satisfaction for the homework was 81% with concerns about not being able to see their answers and multiple-choice format that were difficult to display the entire problem. This information was used to redesign the questions for future semesters. Students also requested more practice problems that will be added in the future. A few students wanted a format of homework like MyMathLab that they used in previous courses.

Power Points: 92% of the students were satisfied with the power points. The only comment about the power points was for there to be more example problems.

Videos: 85% of the students were satisfied with the videos. The videos might not be needed for the face to face classes so the students might have not viewed them and could not respond about the quality.

Textbook: 51% of the students were satisfied with the textbook and 10% bought the hard copy to use. Again, the textbook was mainly a back-up reference to all the other material but 30.4% of students said they used it during the semester. A few students complained about the textbook not being easy to understand.

Website and Calculator: The use of the free websites was popular with some students but other students were adamant about using the TI-83 or TI-84 calculator. Students never really gave their reasons for a preference but were very forthcoming about what they were using. We didn't include a question about both formats in the survey since some faculty never introduced the use of the websites.

Pacing of the Course and Overall Grade Satisfaction: Over 93% of the students felt the pacing was acceptable. This finding is interesting since only 64.7% of faculty found the pacing of the course acceptable. When the students were asked about grade satisfaction, 76% of them replied that they were happy with their grades.

2. Student Quotes

Students were presented with two open-ended questions to gauge what they would change about the course.

Student Quotes on what is missing from the course:

"I don't believe there is anything really missing from the course. I found it to be pretty straightforward."

"The quiz formats were very difficult to navigate."

"The homework. I prefer my math lab because it gives you opportunities to keep practicing and it also shows you what you did wrong with each problem. So I have a better understanding with the material that we are learning instead of doing the homework and being told my answer is wrong but knowing how or why"

"I see no reason to fail due to something missing. I actually have more resources than I thought I would have when registering for Statistics."

"More examples"

Student Quotes on what you would add to the course:

"More chances on homework."

"More examples on the power points."

"I felt as the projects were a tad excess. Although helpful they compounded and made things at times overwhelming. They did help with reinforcing and applying the material we learned and being that their grade weight was small missing one wasn't a critical mistake and your grade won't suffer terribly."

"Nothing really needs to be added."

"I think the course is great as it is."

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?

        *Since the textbook was used as an alternative reference, the overall student opinion was an average of the videos, power points, and homework made from the course.

Total number of students affected in this project: _

- Positive: __86__ % of __227__ number of respondents
- Neutral: __10_ % of __227___ number of respondents
- Negative: __4 _ % of _227____ 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?

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

Choose One:
- ___   Positive: Higher performance outcomes measured over previous semester(s)
- __   Neutral: Same performance outcomes over previous semester(s)
- __X_   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:

__24_% of students, out of a total _407_ students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

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

3b. Narrative

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

DFWI Rate

	Fall 2017	Spring 2018	Fall 2018
Math 2200	85/460 (18.48%)	111/612 (18.14%)	97/407 (23.83%)

Table 1. Comparison of Pre-and Post-transformation DFWI Rates

DFWI Rate. As noted in Table 1 above, there was an 5.35% increase in overall DFWI rate in Math 2200 from the previous academic year and a 5.69% increase in DFWI from the previous semester. There was not a statistically significant difference between the percentage of DWFI rates between Fall 2017 and Fall 2018 (Z-value = -1.9305, p-value = .0536) at the 0.05 level of significance. It should be noted the p-value is very close to the level of significance. Similar results were not seen with Spring 2018's rate being statistically significant different from Fall 2018's rate (Z-value = -2.2071, p-value = .0271). There was a slight difference between enrollment numbers from Spring 2018 and Fall 2018 where more students enroll in Math 2200 in the spring. This would account for difference in the enrollment numbers. Since the increase in the DFWI rate was significant for Spring 2018 and was slightly not significant for Fall 2017, it could be attributed to reasons ranging from instructors' comfort with the new material, students' ability to navigate the new material, and overall structures of the instructors' courses.

Issues with WebAssign. In previous semesters, the MATH 2200 course used WebAssign exclusively for homework. The online versions of these courses used WebAssign for online testing. While designing the course, it was discovered that students from previous sections of the courses had posted many of the WebAssign questions including final exam questions on a third-party website that aids students in finding answers. This practice could have lead to a decrease in overall grades since the new exam questions were timed and would be difficult to get immediate feedback.

Access of Student Learning Outcomes: While we had hoped to tie every homework question back to an SLO, we ran out of time before fall semester began. Our focus turned to the existing assessment as a measurement for the success of the OER materials. For GHC assessment of general education student learning outcomes associated with MATH 2200, students were asked to calculate and interpret the measure of position, Interquartile Range, as a common question given on the exam after teaching descriptive statistics. Overall, 91% of the students were able to calculate and interpret the Interquartile Range correctly in Fall 2018. This rate, although slightly lower than Fall 2017, still exceeds the performance measure of 75% by more than 10%. Secondly, students were asked to interpret information graphically using a boxplot as a common question on the exam given after teaching descriptive statistics. Overall, 79% of the students were able to interpret the boxplot correctly in Fall 2018. Again, this rate, slightly lower than Fall 2017, still meets the performance measure of 75%. While some disparity is not uncommon with the assessment from year to year, the lower performance measure could be explained by various reasons such as only the six full-time faculty members that were part of the grant were required to use the newly developed materials in Fall 2018, grading

inconsistency among the instructors, and different population of students with varied mathematical backgrounds.

4. Sustainability Plan:

This project has shown the importance of producing quality material and resources for students and not relying on third party software and instruments. This process to designing one course was incredibly time consuming and strenuous at times due to constant updates, continuous course building, and overall maintenance of the course. D2L can have an extensive learning curve when developing the problems and creating the materials. The challenges faced by other faculty were usually issues addressed previously but need to be repeated often. Providing faculty with a master course has proven to be an effective way to disseminate the materials quickly and easily. A training session was held before the semester for faculty using the material.   Also, videos were made to reinforce the methods to successfully use the course. While we limited the topics in the course, faculty have seen how easily it is to add new material and topics to their course. There is talk of adding new sections to add more options for faculty to teach.

With the addition of two bachelor degrees that rely on their students to build on their knowledge of statistics, this new course design has helped streamline the topics covered to maximize the continuity of what the students are learning. While faculty have academic freedom to choose how to test and can add any additional activities, the materials and homework problems are providing a substantial base for the students' statistical knowledge.

5. Future Plans

While many of the faculty are onboard with the transformation, we have been met with some resistance from faculty who prefer the third party software. For spring 2019, the Mathematics dean has insisted that everyone use the new course material including the new homework. Our hope is that these faculty will see the benefit to our students and support the new course for future semesters. As the course keeps progressing, the online faculty hope to use a previous semester's midterm and final exam questions as additions to the next semester to help increase the homework base. If the homework problems are being shared by students and don't present an accurate way to fully assess their ability, these problems could be deleted or added to the practice problem sections. More material can easily be added if there are curriculum changes and

While we don't plan to present the material, we do plan to try these techniques in other courses to see if they will impact student success. If we find that we have successfully improved the course enough to show significant change, we will try to publish or present these findings. We are eternally grateful for the opportunity to have been selected and make a difference in

our students' academic careers through this OER. All of the participants have learned a great deal and feel confident in the mission of how OER can impact higher education.

6. Description of Photograph:

The picture included is the main collaborators of the grant. From left to right, the individuals are Elizabeth Clark, Librarian; Katie Bridges, Instructional Designer; Laura Ralston, Professor of Mathematics; and Camille Pace, Assistant Professor of Mathematics.