

ABSTRACT: This project addressed the research question: “Will the introduction of an applied globalization theme influence student engagement, persistence, and performance in MAT212 (Brief Calculus)?” Students participated in three globally themed projects each semester; first, they researched what mathematical skills are needed to succeed in the new global economy; secondly, they gathered data on a global business and used tools of calculus for analysis; lastly, they researched cultural implications of business survival. Results indicate students found that the infusion made the course relevant and showed usefulness of mathematics to future careers.

[Scholarship of Teaching and Learning (SoTL) project funded by The Maricopa Institute for Learning.]

### Background for the Project

Research Question: Will introduction of an applied globalization theme and problems influence student engagement, persistence, and performance in MAT212 (Brief Calculus)?

Students enrolled in brief calculus are there because they have to be. The course serves mainly business students but also various social science and medical programs. It is frequently the last math requirement before transfer to their desired university and on to anticipated careers (quite often identified as successful entrepreneurship). The course is not seen as a useful tool for future success either in their studies or careers; it is seen as an obstacle. Students' mathematical backgrounds are usually rather weak. Mathematics has been viewed as something to endure and, in general, they have tried to learn mathematics by memorizing without seeking to understand it. Whether in this course or subsequent ones, students will not have the remotest chance of succeeding by memorizing; they will need to understand, apply, and hopefully respect mathematics and its usefulness to their world.

My project approach was modified even before the semester started. During the summer leading into the project year, my research yielded little mathematics development at the calculus level from non-European origins. Though I had numerous examples of the foundation of lower mathematics from a myriad of cultures, there was just not enough room in the overly intensive course to present these supporting materials. Then, through happenstance, during a trip after a conference in July, 2006, I was fortunate to witness the money exchange in Istanbul where it became clear to me while viewing the energized event that world cultures and currencies are inextricably intertwined. I felt compelled to prepare my students for their places in the developing global economy.

### Current Literature

Current literature supports the need to prepare students for the global workforce. The sources that follow define globalization, advocate school action, and describe skills needed by students by first addressing the need for broad cultural awareness and mathematical competency.

*What is Globalization?*

Stearns (2003) defines globalization as “the acceleration of interregional contacts in speed, in increased volume and in widening range. Speed is the most obvious, deriving from technological innovations, but range is the most important (p 154).” The process has significant effect on people’s lives especially their work settings and cultural and political identities. Some dub globalization as the most important recent social science happening.

In the International Monetary Fund paper “Globalization: Threat or Opportunity?” globalization is defined as the result of human innovation, increasing integration of economies through trade and financial flows and is seen as inevitable and irreversible. Globalization offers opportunities for worldwide development. The movement of labor and technology internationally produces broader cultural, political and environmental dimensions. The position taken is that countries would need to embrace outward-oriented policies such as those practiced in parts of East Asia to move to the global marketplace and away from poverty. The paper maintains that Latin America and Africa have suffered depressed economic growth as a result of inward-facing policies that kept them from being large scale players in the global economy.

*What Should Schools Be Doing?*

Wallis and Steptoe (2006), in “How to Bring Schools Out of the 20<sup>th</sup> Century,” quote Marc Tucker, president of the National Center on Education and the Economy. The jobs that won’t get outsourced “put an enormous premium on creative and innovative skills, seeing patterns where other people see only chaos” (p XXX).

According to William D. Hunter, a director of international students at Lehigh University, Global Workforce Development (GWD) is “the educational process of fostering and supporting the educational globalization effort.” The term has come into being as companies operating in the global economy search for employees with “global competencies” to keep competitive. William Kirwn, chancellor of the University System of Maryland, Adelphi, says “GWD is a new imperative that requires universities to prepare students with a much deeper understanding of the global community, including knowledge of other languages and cultures (Bremer, 2006, p 40).”

Community colleges enjoy tremendous popularity due to their affordability and pathways to careers. Currently almost half of the nation’s undergraduates are enrolled at community colleges. Also, foreign institutions

are known to seek information from American community colleges in attempts to learn ways of preparing their own students for vocational and technical fields.

Many colleges are now assessing their roles in preparing students for the global economy in which we live. Southeast Community College in Beatrice, Nebraska, made globalization part of their mission statement, examining syllabi to determine how curriculum could be infused with “globally relevant information” (Cardwell, 2006, p 16). Planners felt that globalizing the curriculum required a commitment to updating awareness of geography, foreign languages, politics, religions, trade, and the economic climates of other countries. Also stressed was the need to bring international students to the campus and for faculty to travel internationally.

“Globalization is here to stay,” says James Freeman (2006) of Bronx Community College. He worries that few community colleges are ready to “facilitate our students’ responsibilities to become global citizens, aware and educated about the world as it’s composed today” (p. 8). He says many features of support like responsive college leadership and grant money to assist the already busy instructor with curricular development, must be in place. “Cultural sensitivity, sustainability, communication, science and economics from a global perspective are essential” (p. 9).

Ed Coulter (2006), Chair of the American Association of Community Colleges, maintains that “community colleges must intertwine the concept of global education into their own mission statements and, most importantly, offer global education opportunities.” Mr. Coulter cites the 1994 Stanley Foundation and American Council on International Intercultural Education conference report which states “to ensure the survival and well-being of our communities, it is imperative develop a globally and multiculturally competent citizenry” (p. 6).

Demirdjian (2005) surveyed 400 business executives and 400 students about their perceptions on the effects of globalization. The definition of globalization used is “the global circulation of goods, services, or information, ideas and people” (p. 8). He found that current business students often regard globalization negatively due to perceived impact on the environment from potential exploitation of natural resources. The author notes that these students are our future business leaders and his hope is that they can use the irreversible force of globalization for peaceful and humanitarian gain.

Nearly a decade ago, Sepe and Kaufman (1998) urged colleges and universities to be more responsive to the needs of business in our changing world economy. Students need to know how their skills can be applied.

*What Skills Should Students Take Away?*

David Shane (2007) states that access to technology puts developing countries on par with the developed. “Technology and trade divide the world into two camps – those with skills to participate in the global economy and those who lack them.” Businesses compete via internet bidding and contracting.

“In the new, borderless economy, culture doesn’t matter less; it matters more.” All business is global and competition comes from everywhere. Doug Ivester, former Chief Executive Officer (CEO) of Coca-Cola, states that, “As economic borders come down, cultural barriers go up, presenting new challenges and opportunities in business” (Rosen & Digh, 2001, p. 72). There is international competition for talent, greater pressure to increase productivity. Ted Kunkel, CEO of Foster’s Brewing Group describes his company as a “...global brains company. Investing in knowledge and development is the flame for us to create a sustainable enterprise” (p. 74). Rosen and Digh continue that global literacy focuses on the personal, social, business, cultural tenets of the organization. Companies must be successful by building and linking strategies in leadership, culture and continued learning. Successful leaders must help create a global vision and foster multitalented, cross-cultural teams.

Hendrix (1998) asserts “because the world is fast becoming one common society...global education should be part of the curriculum...Students must know how to cope in a pluralistic society and how to relate to diversity” (p 1). Benefits to students include cultural understandings through the study of language, literature, economics and politics; awareness of the interdependence of nations, better communications skills, understanding of international problems such as poverty and disease.

Richard Florida, U.S. public policy expert, believes students should be fluent in multiple languages plus math, science, computing, and technology. He sees these integral to a holistic understanding of an interconnected world. These subjects are already considered the key to economic development. The jobs in the new economy that won’t get outsourced will go to those with innovative and creative skills. Interdisciplinary combinations will be needed; it’s the partnering of “design and technology, mathematics and art...that produce YouTube and Google” (Wallis, 2006, p 2).. Lockheed Martin Chief Executive Officer Norman Augustine stated, “Most innovations today involve large teams of people. We have to emphasize communication skills, the ability to work in teams and with people from different cultures” (p 3).

The University of Georgia sees itself at the “forefront of the globalization movement in higher education.” In its work to develop students for future business careers notes the importance of mathematical competence for success in the global economy (retrieved from <http://www.uga.edu/aboutUGA/compete-vita.html>).

Senator Chris Dodd (2006) of Connecticut reflects upon the National Academy of Sciences report *Rising Above the Gathering Storm*, which examined America’s level of competitiveness in the global economy. The Senator’s concerns are that we must improve education offerings in critical areas such as mathematics. Kronholz (2006) chastises the American educational system for not producing enough high-skilled workers thus making us dependent on foreign-born students studying math-based curriculum in this country. She says the need is so great that Congress is attempting to introduce a bill to put graduates of such degrees on an immediate track to citizenship.

Star (2003) calls for reform in mathematics education to ensure the subject would be “composed of a useful, coherent, and dynamic system of concepts and ideas, where learning is accomplished by sense-making...” (p 10).

Baker (2006) notes the need for math skills in the global economy. He explains that in our information-rich society, mathematical modeling is needed for sense-making and producing profitable marketing and business plans. He says business leaders must also be armed with mathematical savvy to question assumptions based on the numbers.

## Globalizing Brief Calculus

*Projects and Problems*

Project 1 requires students, even before the first competency is tackled, to research the web for the mathematical skills needed for the job they desire and/or the relationship between completion of a calculus course and future earnings. The effect is immediate. Students are surprised to find the need for numeracy listed by many of the prestigious firms and/or professions they are interested in. They find that understanding of and facility with calculus is listed as a necessary prerequisite for many careers. They need this course to get where they want.

As stated, the course itself is rigorous. There are large chunks of material extracted from two semesters of the year-long calculus series and condensed into this three credit Brief Calculus course. Delivery is fast-paced.

The first chapter of the book is grounded in familiar applications and we are into the mathematics. For the semester, a normal class period starts with attention to homework problems that cannot be resolved in their pods of four. Much of the calculus cannot be instructor-driven with proofs and derivations at this level, so new concepts are facilitated in discovery mode as much as possible. Students are asked to look for patterns. Small white boards are used by each team and groups interact to check that all have identified the patterns.

Project 2 is merely to research data on a global business. The goal is to find an American business which has operations overseas. The exploration and collection of data requirements are a minimum of four data sets.

Project 2b is to take the raw data and extract two equations from it employing the calculator's regression analysis capability. Ideally students would then use the product rule techniques to analyze rate of change in the business chosen. This assignment was successful with the fall classes. Those students took advantage of the bonus points offered for presenting their projects. Some were resplendent with graphs, tables, and PowerPoint slides.

The spring semester classes struggled much more with the notion of product rule and the task of matching data via dimension analysis became quite problematic for all but a few. So, an adaptation was made and labeled Project 2bc. Students were allowed to apply *any* calculus technique learned to the data. This had an added benefit of having students reflect upon what calculus they had learned and how to apply it. Less than 50% of the students submitted projects. They were seemingly willing to forfeit the ten points; hindsight tells me it should have been worth more. The projects that were submitted were, for the most part, meaningful. Students picked a company that

interested them and then decided on a dimension of the company to analyze. Many worked with me to make sure they were on the right track.

The last project is to hypothesize reasons for Walmart's pull-out of the German and South Korean markets. Students were given some websites much like a webquest assignment but then were allowed/encouraged to search further. Most all cited cultural reasons for lack of customer appeal in these new markets. A few considered the political landscape. They wondered if Walmart did its homework and why it didn't adapt more quickly when things went wrong. Of course, we are just scratching the surface of the misadventures of a huge corporation, but nevertheless, students got a glimpse into the reality of global business enterprise.

### *CLASI*

The spring semester classes took a turn due to some very poor academic performance coupled with some small but irritating issues of academic misconduct. This led me to seek some support. Through the aid of the Chandler-Gilbert Counseling Department, I was able to access a program they had just recently implemented. It is called Classroom Learning and Assessment Skills Integration (CLASI). I selected two modules; one focused on procrastination and goal-setting while the other required students to self-assess their classroom behavior and learn the consequences of academic integrity violations. Students were encouraged to complete the assignments for extra credit points. About 60% of the students took advantage of the opportunity.

Reaction to the CLASI project was overwhelmingly positive. Students wrote such comments as, "I didn't realize how disabling procrastination has been to my academic and personal lives," and "The goal-setting activity required me to focus on what I need to get accomplished to get the degree and the job I want."

### Results

Based upon the student testimonials and evaluative comments, I believe the enhancement of the brief calculus curriculum with global business problems and projects has accomplished the goals of increased student motivation, perseverance and success. I am ascertaining this based upon end-of-semester course reviews, classroom assessment instruments, and formal/informal interviews. I also asked students to reflect in writing upon their learning and problem areas before each exam. Their comments, their excellent attendance, group discussions, and

their facial expressions indicated engagement. I have taught this course before and I can safely state that my own level of excitement/interest is much higher.

Exit interviews with students who withdrew during the course indicated a variety of the usual factors: change in work schedule, course not needed for major, illnesses and work interruptions that caused them to get irrevocably behind, and one who said she had extreme difficulty grasping the concepts given the pace of the class. Withdrawal rate in the spring semester was much higher especially for those who admitted to poor study skills.

I was disappointed by the small number of students who paid office visits to me. Email communication was high, however, and I had a lot of interaction with students in the tutoring center, and, of course, in the classroom groups. Many when questioned about not seeking instructor support more often responded with remarks that indicated much self-responsibility.

#### Lessons Learned/What Next?

This summer I will be writing more global business projects and problems to share with those who teach the course. My research will continue next year as I team with the author of the textbook and the author of the CLASI modules to further enrich the course materials and student learning. I do enjoy teaching the subject matter and now with these and forthcoming curricular enhancements, I believe we can support and encourage students to be engaged, perseverant and successful.

Looking back on the year has made me feel especially grateful to Maricopa Community Colleges for supporting a program that allows one the time to work closely with students and the materials that motivate them. I had the support and encouragement of dedicated, compassionate Fellows and our knowledgeable Project Leader. The year flew altogether too quickly. I must continue this work into the coming semesters; I feel it has most definitely made an impact on my students' learning and my teacher's heart. We are in this chosen field to "make a difference" after all.

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APPENDIX

Sample Results from Student Evaluations

**MAT 212 Rudibaugh, CGCC,**

**Fall 2006**

**How did adding the globalization element whenever possible add to your  
interest/understanding/motivation?**

- It helped me bring real world events into a math class environment. Helped show how math can work in the real world.
- I finally realized math has real application!
- It was cool to see how calculus could be used in almost any facet of life. I enjoyed the projects where we could use calculus to understand world populations or food consumption, etc... I had fun and enjoyed the experience.
- It helped me to see that I need to learn this stuff because it's used in real life scenarios.
- It gave me a broader picture of the usefulness of math, especially calculus.
- It applied real world experiences to complicated calculus. I loved it.
- I put real situations into use which is helpful to fully understand certain concepts.
- Made the class work interesting, made the math useful in real world examples.
- It added to my interest of learning more about globalization in the world of my career.
- Made me understand that there is a lot of competition out there and if you want to be successful you need to elevate your education and expand your knowledge.
- Applying what I'm learning to the real world helped me focus more on the concept at hand.
- It did add some interest because now we know why calculus is useful.
- Helped me realize math is used in areas that I never thought of.
- Yes, it made it more "real life."
- I understood why we were doing this more than I would have.
- I liked how we focused on issues outside the U.S., and learned real world concepts that applied to business.
- Helped me realize how it relates to real-world uses for math concepts.
- I think when the globalization element was added, it made this class more real. You really understand why calculus is important in the real world.
- I am very interested in global business and the economics of those business markets. The teacher gave us projects that closely related to the topic of how business affects us in a global sense, which allowed me and our class to see how our brief calculus class will help us later in our business careers. This both motivated and helped me understand.
- I found that aspect very interesting and different from previous math classes.
- It was easier to understand in a "real" setting.
- It was difficult to find the information. It was interesting and made the math meaningful.
- It made things more interesting.
- It added interest because it applied to real life applications which is what really matters.
- Learning about how companies use calculus in understanding max profit, revenue, etc.

- It was cool for our projects because we got to apply math to real life situations. We got to make our own problems and put it into a real world context.
- It was interesting to see different things people come up with.
- It was interesting to see how the concepts we were learning could be applied to everyday life.
- It helped a little, I guess. Just knowing that this stuff is used we're not just learning it because we need something to do.
- I did not know anything about globalization prior to this class. So it did add to my understanding of it.
- It helped me understand how math and calculus could be used in the real world.
- Because its real life it's not a "cake" problem. It helped me use what we learned and apply it to the real world.
- It helped because it showed how I can use it.
- It was interesting to see how math is used when related to business.
- It's helpful because we are learning about real life situations and not just numbers. Usually it's just numbers with no connection to the real world.

**CHANDLER-GILBERT COMMUNITY COLLEGES  
MAT 212 GRADE DISTRIBUTIONS  
COMPARED TO ALL OTHER MARICOPA COLLEGES  
FALL 2002 TO FALL 2006**

**CGCC ONLY**

	GRADE DISTRIBUTION								PERCENTAGES	
	A	B	C	D	F	W	Y	TOTAL	COMPLETION	SUCCESSFUL COMPLETION
<b>FALL 2002</b>	72	59	23	11	7	31	1	204	84.3%	75.5%
<b>FALL 2003</b>	52	58	29	13	11	40	3	206	79.1%	67.5%
<b>FALL 2004</b>	84	56	40	9	6	35	3	233	83.7%	77.3%
<b>FALL 2005</b>	47	69	50	17	19	33	0	235	86.0%	70.6%
<b>FALL 2006</b>	40	54	49	19	6	56	1	225	74.7%	63.6%
<b>CGCC FALL 2006 SECTIONS BREAKOUT</b>										
<b>All Other MAT212</b>	24	36	33	9	5	45	1	153	69.9%	60.8%
<b>Rudibaugh Sections</b>										
<b>Section 2315</b>	5	11	8	7	1	6	0	38	84.2%	63.2%
<b>Section 2319</b>	11	7	8	3	0	5	0	34	85.3%	76.5%
<b>Subtotal</b>	16	18	16	10	1	11	0	72	84.7%	69.4%

**ALL OTHER MARICOPA COLLEGES**

	GRADE DISTRIBUTION								PERCENTAGES	
	A	B	C	D	F	W	Y	TOTAL	COMPLETION	SUCCESSFUL COMPLETION
<b>FALL 2002</b>	297	263	219	66	49	343	4	1241	72.0%	62.8%
<b>FALL 2003</b>	294	296	227	58	48	327	10	1260	73.3%	64.8%
<b>FALL 2004</b>	282	292	268	75	54	335	7	1313	74.0%	64.1%
<b>FALL 2005</b>	262	309	250	69	42	344	11	1208	72.4%	63.8%
<b>FALL 2006</b>	217	256	226	62	78	352	17	1208	69.5%	57.9%

**COMPLETION:** Percent of students who did not withdraw.

**SUSSESSFUL COMPLETION:** Percent of students who receive a grade of "C" or higher.

Students who were not graded or had incompletes were removed from the analysis.

For Fall 2003 one student was not graded districtwide; and for Fall 2006 18 were either not graded or had an incomplete. None of the incompletes or non-graded students was at CGCC for any term.

## Spring 2007 MAT212 Course Assessment

**What worked for me in the course:**

- The CLASI extra credit was interesting because it made you think about other areas in college besides math.
- From a global stand point I better my skills so I can try and stay ahead and get a good job in the future.
- CLASI helped picture the future and make goals for herself
- CLASI definitely helped me realize how much I procrastinated on everything.
- The CLASI project was useful because it taught me not to put things off till the end to spend your time wisely
- I like the real-life problems since you will actually use them throughout your life
- I think I benefited from CLASI the most, out of the two. I really liked the links on the web. Gave me tools to work on areas in my life that will help me to be successful. Usually I don't like to read info to learn, but what we read was motivating.
- You can calculate stock for example and put in money, you can calculate anything as long as you have a graphing calculator.
- Tutoring center was a huge asset. Just being able to apply what I'm learning to real life on this scale really keeps me captive and focused on the course.
- The course helped me to see everyday application to regular business problems.
- Knowing how to find the rate of change and max/min in graphs for profits.
- CLASI was helpful to realize my goals and that I procrastinate too much.
- Not to procrastinate
- Teacher was very helpful and answered my questions
- Going to tutoring center, doing homework and assignments such as CLASI and the global business assignments.
- The projects we worked upon
- I saw the need to plan ahead and how calculus will help me get a leg up on my business degree
- I liked being able to look at global businesses and see how learning calculus fit
- in with them. CLASI helped me to organize my life and prioritize what is more
- important and how to act in class
- The global business aspect helped me incorporate the advantages of calculus in the real world through the money and corporations of global business. CLASI helped me realize my procrastination problems and the differences of college compared to high school.
- CLASI helped very much, showed me ways to keep from procrastinating
- The global business application helped me understand how to apply math to business
- Learn how to apply calculus in real-world context. Learn how to manage time and efforts
- I liked the fact that a lot of the class was geared toward trying to make us think about
- businesses when it comes to global issues. I thought more could have been done through since most people taking the class are some sort of business major.
- There were some things I found helpful in this course. I liked the real life problems and CLASI
- Helping to relate to business management with sales and rates of change.
- I didn't find any value in including the global stuff, I would much rather concentrate on learning the calculus more. We didn't spend enough time on just doing calculus.
- Team trials
- Definitely doing my homework. Practicing until I understand in class examples.
- That there was real life scenarios in the work that we were doing
- CLASI helped me see how not to procrastinate

**Info in this course that's worth being familiar with:**

- Derivatives
- Average rate of change
- Both derivatives and integrals
- Rate of change
- A lot of things I learned in this class will be useful for me during my career
- whatever you think you will need later on
- yes, some but not all
- word problems
- previous math (pre calc)
- Math
- everything we should know it will be useful in life
- Recognizing all the key differences in functions and their application to real life

- Slopes and word problems
- Average rate of change
- Math (Brief Calc) is used often in the business world. It also forces us to use our brain in different ways to solve problem
- Rates of change. Max and Min. Understanding deriv. and antideriv.
- Derivative's meaning and how to apply it to a business function
- rate of change
- the use of derivatives in calculating changes
- being able to find the average rate of change every time is useful
- tangent line
- knowing basic calc. function
- most of the material
- High real life examples- very useful
- finding the extremas of a function
- Derivative
- Anti-derivatives
- Finding derivatives, statistical analysis
- Everything
- basically all the concepts learned in chapters 9-13.
- derivatives were really helpful
- very much, used for other classes.
- most of the course you need to familiarize yourself with
- Business
- differentiation, integration
- chemistry, pre-calculus
- Anti-derivatives
- derivatives, anti-derivatives, etc.
- derivative, tangent line, rate of change  $f'$  and  $f''$
- depends; for me, everything learned can be worth it. Opens up my mind on the different ways problems can be solved.
- derivatives, anti-derivatives, u-sub., etc.

**Info in this course that's important to know and do:**

- derivs and such from real life examples
- for math course purposes, it was all important
- functions
- how to apply calculus in everyday lives
- average rate of change, deriv, "real-life" problems
- Everything
- everything is important in a math class because once you get behind its hard to catch up
- Not really, when will I really use this?
- Average rate of change
- calculus
- everything you should learn how to do because it is all going to be on the test
- graphing calculated information, finding derivatives, and using algebra
- word problems like miles per hour
- derivatives
- overall, brief calc concepts are important. Application is the real world
- homework which gives more practice
- Rates of change. Max and Min. Understanding deriv. and antideriv.
- derivative and its meaning. Integral and its meaning
- Rate of change, relative and absolute extreme, derivative
- how to take the derivative and integral of a function
- the instintaneous rate of change
- derivative
- calculate the rate of change
- Everything
- a ton
- knowing how to find critical values relative to max and min
- derivatives and tangent lines
- using graphing calc finding deriv.
- finding derivatives and tangent line
- the real life problems, anti-derivatives
- can be used in real world applications
- mainly the derivatives
- how to apply differentiation and integration in real-life problems
- depends. For myself. Everything learned can be worth it. Opens up my mind on the different ways problems can be solved.
- $f'$  and  $f''$ , max-min=sales chart
- functions, real life problems
- everything especially derivatives
- derivatives and integrals

- derivatives and tangent lines
- using graphing calculator to find the derivative.
- finding derivatives and tangent line
- differentiation and integrals
- the real life problems, anti-derivatives
- can be used in real world applications
- mainly the derivatives
- Derivatives
- functions, real life problems
- $f'$  and  $f''$ , max-min=sales chart
- only the calculus
- everything especially derivatives
- Derivatives and integrals

**Understanding in this course that I believe will be enduring:**

- Help us with other classes
- finding extremas
- Derivatives in the future
- possibly the target line
- don't know
- I don't know. Honestly, I'm too anxious to think about the future
- Integration
- Derivatives!
- Just real life equations to help me make decisions
- I didn't understand a lot of it
- It all depends on what career you are going towards, some will use this stuff, others will not.
- Nope, I won't remember most of it.
- Logs
- real life problems
- It will help me later in life down the road with my future job
- improving study habits and doing homework helps a ton!
- If I decide to go to grad school I will have to know all of the material
- Application of problem to real life situation
- Real life application
- derivative, power rule, exponential rule, rate of change, log rule, chain rule
- Derivatives, derivatives, derivatives!
- Integrals
- How to understand business in calc to better understand globalization
- Help us with other classes
- Derivatives
- using derivatives to find rate of change
- possibly everything but we will see in a few years
- basic calculus concepts and how they apply to life and business.
- Everything in this course is helpful
- class moves quickly have to be able to understand the material.
- I had many struggles
- Derivatives, anti-derivatives
- for the rest of our life
- my career
- global issues (like the wal-mart problem)
- CLASI, Wal-mart question, projects, etc.
- knowing how to graph/read rates of change and seeing the max/min values for performance sales
- Derivatives
- I am not sure yet
- all of it

**Suggestions for Instructor:**

- Awesome class
- Go a little slower
- You did great
- This course was very difficult for me and obviously many of my classmates. I suggest instead of working on the hardest problem try just the more simple ones. Things were too highly expected of us.
- more and more review for slow learners like me!
- Just more instruction time and powerpoints on the homework packets

- cover rel and abs min/max more.
- make sure everyone understands current lesson before moving on.
- Try to have notes so that we can go back to look at them other than that you were an awesome teacher and helped me learn a lot! I never thought I'd be taking calculus! Thank you!
- Ms. Rudibaugh was great, I'm just not strong in math. I wish we would have done less group work and had her teach more.
- I enjoyed this class much more than some of my past math professors. I took this class once before, I pray that it will be my last time! I enjoyed the real life problems like the Wal-Mart and Team trials wich make the learning much more fun.
- None, very good teacher. She is always available for help. Great Teacher
- At the beginning of the semester, all the homework problems assigned overwhelmed me, then we were told we wouldn't get credit for it. I have found that if we are assigned a worable amount of homeowrk and receive credit we are more likely to do it, grasping the concept better.
- Thank you!!
- I really loved this class!
- Lecture the class more and explains the formulas in-depth and uses more examples
- Thanks for all the help
- Just wanted to say, you are a great instructor. I know this because I took this course last semester and failed. I firmly believe it was to do with the teaching style and you helped me more. Thank you!
- You did a great job and I enjoyed learning from you.
- More point quizzes
- search for better textbook
- easy teaching! I actually understood everything this semester
- spend more time on teaching how to use the rules
- great job and thanks for everything
- Great job, Mrs. Rudibaugh! I really appreciate your instruction. Hope to see you in other classes
- I thought you did a great job. Thanks for everything
- Maybe include more examples to understand how what we learned is relevent in real world. Word problems? Useful applications
- Maybe go a little slower. Work problems out fully.
- Try to have student do more of the homework so we understand how other students got the problem
- Thank you for always being available