

## Mathematics Student Learning Outcome Alignment Form

Course Prefix/Number: MATH 1325

Course Title: Calculus for Business and Social Science

Core Objective	Course SLO	General Learning Activities	Assessment
<b>Critical Thinking Skills</b>	SLO #4 Solve optimization problems with emphasis on business and social sciences applications.	Students will apply calculus concepts to problems related to business, economics, and social sciences in order to better understand, interpret, and extrapolate data particular to those fields. Examples of these problems include exploring cost/demand relationships in business and applying those ideas to profit, revenue, optimization, and other interrelationships particular to business. As for economics, example problems include examination of the index of wealth distribution and it's ramifications. Social science applications include exploring factors involved in student learning rates..	This will be assessed using the <a href="#">Critical Thinking Skills rubric</a> .
<b>Communication Skills</b>	SLO #1 Apply calculus to solve business, economics, and social sciences problems.	Students will discuss, report on, and diagram implications revealed when calculus concepts are applied to problems related to business, economics, and social sciences in order to better understand, interpret, and extrapolate data particular to those fields. Examples of these problems include exploring cost/demand relationships in business and applying those ideas to profit, revenue, optimization, and other interrelationships particular to business.	The <a href="#">Communication Skills rubric</a> will be used to assess communication skills.

		As for economics, example problems include examination of the index of wealth distribution and it's ramifications. Social science applications include exploring factors involved in student learning rates.	
<b>Empirical &amp; Quantitative Skills</b>	SLO #7 Solve business, economics, and social sciences applications problems using integration techniques.	Students will apply calculus concepts to problems related to business, economics, and social sciences in order to better understand, interpret, and extrapolate data particular to those fields. Examples of these problems include exploring cost/demand relationships in business and applying those ideas to profit, revenue, optimization, and other interrelationships particular to business. As for economics, example problems include examination of the index of wealth distribution and it's ramifications. Social science applications include exploring factors involved in student learning rates.	The <a href="#">Empirical and Quantitative Skills</a> rubric will be used to assess empirical and quantitative skills.

# CRITICAL THINKING VALUE RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric

## Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

	<b>Does Not Meet Any Expectations 1</b>	<b>Meets Few Expectations 2</b>	<b>Meets Expectations 3</b>	<b>Exceeds Some Expectations 4</b>	<b>Exceeds All Expectations 5</b>
<b>Explanation of Issues</b>	Did not state issue.	Issue is stated without clarification or description.	Issue is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined and/or backgrounds unknown.	Issue is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.
<b>Evidence</b>	Does not identify the basic components of an issue	Information is taken from sources without any interpretation. Viewpoints of experts are taken as fact, without question	Information is taken from sources with some interpretation but not enough to develop a coherent analysis or synthesis.	Information is taken from sources with enough interpretation to develop a coherent analysis or synthesis.	Information is taken from sources with enough interpretation to develop a comprehensive analysis or synthesis.
<b>Influence of Context and Assumptions</b>	Did not show awareness of the issue.	Show an emerging awareness of present assumptions.	Questions some assumptions. Identifies relevant information when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Thoroughly analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.
<b>Student's Position</b>	Takes no position on issue	Specific position is stated but is simplistic and obvious.	Specific position acknowledges different sides of an issue.	Specific position takes into account the complexities of an issue. Others' points of view are acknowledged within position.	Specific position is imaginative. Limits of position acknowledged. Other points of view are synthesized.
<b>Conclusions and Related Outcomes</b>	Does not use previously learned information in new situations.	Conclusion is inconsistently tied to some of the information discussed; related outcomes are oversimplified.	Conclusion is logically tied to information; some related outcomes are identified.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes are identified clearly	Conclusions and related outcomes are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order

# Communication RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric and Making Learning Real

## Definition

Written communication is the development and expression of ideas in writing.

Oral Communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

Visual Communication is the use of images to persuade, entertain, inform, and enlighten an observing audience of products, ideas, and messages.

	<b>Does Not Meet Any Expectations</b> <b>1</b>	<b>Meets Few Expectations</b> <b>2</b>	<b>Meets Expectations</b> <b>3</b>	<b>Exceeds Some Expectations</b> <b>4</b>	<b>Exceeds All Expectations</b> <b>5</b>
<b>Quality of Information and Organization</b>	Presentation lacks main points and related details. Information lacks connection to the presentation topic. Information is not organized.	Main points are not clear and lack significant detail. Some information is linked to the presentation topic. Information is loosely organized.	Main points are somewhat clear but could use more detail. Most information is linked to the presentation topic. Information is organized.	Main points are clear and detailed. Information is linked to presentation topic. Information is well organized.	Main points are very clear and very detailed. Information is directly linked to presentation topic. Information is very organized.
<b>Nonverbal Communication</b>	Speaker appears very uneasy and insecure. Speaker faces away from the audience or makes no eye contact. Speaker appears disengaged from the audience. Speaker uses few body motions or gestures or has movements that distract the audience.	Speaker appears uneasy and somewhat insecure. Speaker rarely faces the audience or makes eye contact. Speaker rarely appears to be engaging with the audience. Speaker uses few body motions or has gestures or movements that distract the audience..	Speaker appears generally at ease and confident. Speaker sometimes faces the audience and maintains eye contact. Speaker sometimes appears to be engaging with the audience. Speaker's body motions and gestures neither support nor detract from presentation.	Speaker appears fairly comfortable and confident. Speaker generally faces the audience and maintains good eye contact. Speaker generally appears to be engaging with the audience. Speaker uses body motions and gestures well.	Speaker appears very comfortable and confident. Speaker consistently faces the audience and maintains good eye contact. Speaker consistently appears to be engaging with the audience. Speaker uses body motions and gestures very effectively.
<b>Quality of Verbal Communication</b>	Speaker's voice is consistently too weak or too strong. Speaker fails to use inflections to emphasize key points and create interest or often uses inflections inappropriately. Speaker's talking paces is consistently too slow or too fast.	Speaker's voice is frequently too weak or too strong. Speaker rarely uses inflections to emphasize key points and create interest or speaker sometimes uses inflections inappropriately. Speaker's talking pace is often too slow or too fast.	Speaker's voice is generally steady strong and clear. Speaker sometimes uses inflections to emphasize key points and create interest. Speaker's talking pace is appropriate.	Speaker's voice is steady, strong, and clear. Speaker often uses inflections to emphasize key points and create interest. Speaker's talking pace is mostly appropriate.	Speaker's voice is very confident, steady, strong, and clear. Speaker consistently uses inflections to emphasize key points or to create interest. Speaker's talking pace is consistently appropriate.

<b>Visual Tools</b>	Visual aids demonstrate no creativity or clarity and are often difficult to read. Presentation is weakened by the visual tools.	Visual aids have limited creativity or clarity or are sometimes difficult to read. Presentation is not enhanced by the visual tools.	Visual aids are reasonably creative, clear, and easy to read. Presentation is sometimes enhanced by the visual tools.	Visual aids are usually creative, clear, and easy to read. Presentation is often enhanced by the visual tools.	Visual aids are very creative, clear, and easy to read. Presentation is consistently enhanced by the visual tools.
<b>Appropriate Use of Vocabulary</b>	Few or no terms are included in the presentation. May or may not be used appropriately. Lacks context.	Several terms are included in the presentation. May or may not be used appropriately. May lack context.	Most terms are included in the presentation. Generally used appropriately. Generally used in appropriate context.	All terms are included in the presentation. Used effectively. Used in context.	All terms are included in the presentation. Used in unique and creative ways. Used in context
<b>Precision and Detail in Documents Produced</b>	Written documents have numerous errors and lack detail. Little care taken in the production.	Documents may have some errors and show some detail. Some care has been taken in production.	Evident that written documents are correct and show a general attention to detail and accuracy. General care has been taken in production.	Clearly evident that written documents are correct, detailed and accurate. Care has been taken in production.	Documents are clear, well-constructed, accurate, and show attention to detail. Extra care has been taken in the production of written documents.
<b>Overall Presentational Effectiveness</b>	The presentation was weak and not effective.	The presentation was average and somewhat effective.	The presentation was good and effective.	The presentation was very good and effective.	The presentation was exceptional and extremely effective.

# Empirical and Quantitative Skills RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric

## Definition

The ability to formulate an inquiry that is scientific or mathematical in nature, and then manipulate and analyze numerical data and/or follow an investigative process using empirical and/or quantitative reasoning to satisfy the inquiry and create informed conclusions.

	<b>Does Not Meet Any Expectations</b> <b>1</b>	<b>Meets Few Expectations</b> <b>2</b>	<b>Meets Expectations</b> <b>3</b>	<b>Exceeds Some Expectations</b> <b>4</b>	<b>Exceeds All Expectations</b> <b>5</b>
<b>Identification</b>	The purpose, components, and variables of the investigation/project are not identified.	The purpose, components, and variables of the investigation/project are somewhat identified.	The purpose, components, and variables of the investigation/project are mostly identified	The purpose, components, and variables of the investigation/project are clearly identified..	The purpose, components, and variables of the investigation/project are clearly identified.
<b>Assimilation</b>	The information that is required for an analysis of all investigative components is not evident. If applicable, values are incorrectly translated into variables and no necessary formulas are present.	The information that is required for an analysis of all investigative components is somewhat evident. If applicable, values are incorrectly translated into variables and some necessary formulas are present.	The information that is required for an analysis of all investigative components is mostly evident. If applicable, some values are correctly translated into variables and most necessary formulas are present.	The information that is required for an analysis of all investigative components is evident. If applicable, most values are correctly translated into variables and all necessary formulas are present.	The information that is required for an analysis of all investigative components is clearly evident. If applicable, values are correctly translated into variables and all necessary formulas are present.
<b>Analysis</b>	Most investigative or quantitative components are not scrutinized. The steps followed are illogical and/or irrelevant to the desired result. The proper tools/ technology were not used and/or integrated into the final product. Any notation is not consistent and not defined.	Some investigative or quantitative components are scrutinized. Some steps followed are somewhat logical and relevant to the desired result. The proper tools/ technology were somewhat used and not integrated into the final product. Any notation is somewhat consistent but not defined.	All investigative or quantitative components are somewhat scrutinized. The steps followed are mostly logical and relevant to the desired result. The proper tools/ technology were mostly used and somewhat integrated into the final product. Any notation is mostly consistent and defined.	All investigative or quantitative components are scrutinized. The steps followed are logical and relevant to the desired result. The proper tools/ technology were used and mostly integrated into the final product. Any notation is consistent and well defined.	All investigative or quantitative components are methodically scrutinized. The steps followed are logical and relevant to the desired result. The proper tools/ technology were used and well integrated into the final product. Any notation is consistent and well defined.

<b>Presentation</b>	A summary of the analysis is either inadequately presented or not presented at all. The presented information is mostly incorrect, and/or of poor quality, and/or the terminology/figures are inaccurate and/or hard to understand. Few or no visual representations of evidence are acceptably scaled/ represent the analysis findings.	A partial summary of the analysis is presented. The presented information is somewhat correct, of adequate quality, and the terminology/figures are somewhat accurate and relatively easy to understand. Some visual representations of evidence are acceptably scaled and represent the analysis findings.	A summary of the analysis is presented. The presented information is mostly correct, of good quality, and the terminology/figures are mostly accurate and easy to understand. Most visual representations of evidence are acceptably scaled and represent the analysis findings.	A good summary of the analysis is presented. The presented information is correct, of good quality, and the terminology/figures are accurate and easy to understand. Most visual representations of evidence are well-scaled and/or well represent the analysis findings..	A concise summary of the analysis is presented. The presented information is correct, of high quality, and the terminology/figures are accurate and easy to understand. All visual representations of evidence are well-scaled and well represent the analysis findings.
<b>Application</b>	The integration does not include all steps of the investigation and does not lead to an accurate, nor complete conclusion that relates to the initial investigative argument.	The integration of most steps of the investigation lead to a somewhat accurate, partially complete conclusion that is relative to the initial investigative statement.	The coherent integration of most steps of the investigation lead to an accurate, mostly complete, acceptable conclusion that is relative to the initial investigative statement.	The coherent integration of all steps of the investigation lead to an accurate, mostly complete, relevant conclusion that is relative to the initial investigative statement.	The coherent integration of all steps of the investigation lead to an accurate, complete, relevant conclusion that is relative to the initial investigative statement.

# TEXARKANA COLLEGE

**Syllabus:** Business Calculus

**Course Number:** Math 1325

**Semester & Year:** Spring 2014

## **Instructor Information**

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## **Textbook Information**

“College Mathematics for Business, Economics, Life Science, and Social Science”, 12<sup>th</sup> Edition, by Barnett, Ziegler, Byleen

“MyMathLab” online resources

<http://www.mypearsonstore.com/bookstore/product.asp?isbn=0321614003&xid=PSED>

## **Student Learning Outcomes for the Course**

1. Apply differentiation rules to find derivative of polynomial, radical, exponential, logarithmic and composite functions..
2. Use derivative rules to find marginal cost, revenue and profit for polynomial and exponential functions.
3. Find indefinite integrals for polynomial, exponential, and composite functions.
4. Use the definite integral to find the area between two graphs.
5. Use the definite integral to find index of income distribution.
6. Use the definite integral to find total income from continuous income stream.
7. Use the definite integral to find consumers' and producers' surplus.

## **Student Requirements for Completion of the Course and Due Dates**

Homework assignments are in the online resource MyMathLab. Chapter tests are taken in the Testing Center BY the due date. The Final Exam is taken in the classroom according to the Campus-wide schedule.

## **Student Assessment**

25 Homework – 20% (Lowest 3 scores are dropped)

5 Chapter Tests – 60%

1 Final Exam – 20%

## **Grading Scale**

<b>A</b>	90-100	<b>B</b>	80-89	<b>C</b>	70-79	<b>D</b>	60-69	<b>F</b>	59-below
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## **Class Schedule**

See separate Schedule.



### **Absentee Policy**

Every student is allowed 4 absences. Three tardies will count as one absence. Students may be dropped for excessive absences.

### **Make-up Policy**

For homework, there is a 10 day window after the due date in which to complete the assignment (except for the last assignments). Scores are automatically reduced 10% per day beyond the due date.

### **Academic Integrity Statement**

Scholastic dishonesty, involving but not limited to cheating on a test, plagiarism, collusion, or falsification of records will make the student liable for disciplinary action after being investigated by the Dean of Students. Proven violations of this nature will result in the student being dropped from the class with an "F".

This policy applies campus wide, including TC Testing Center, as well as off-campus classroom or lab sites, including dual credit campuses. This information can be found in the Student Handbook at <https://texarkanacollege.edu>.

### **Disability Act Statement:**

Texarkana College complies with all provisions of the Americans with Disabilities Act and makes reasonable accommodations upon request. Please contact Larry Andrews at 903.823.3283, or go by the Recruitment, Advisement, and Retention Department located in the Administration building for personal assistance.

If you have an accommodation letter from their office indicating that you have a disability which requires academic accommodations, please present it to me so we can discuss the accommodations that you might need for this class. *It is best to request these changes at the beginning if not before the start of class* so there is ample time to make the accommodations..

### **Financial Aid:**

**Attention!** Dropping this class may affect your funding in a negative way! You could owe money to the college and/or federal government. Please check with the Financial Aid office before making a decision.