



## *HLC Accreditation Evidence*

Title: Syllabus Example

URL:

[https://bartonccc.campusconcourse.com/view\\_syllabus?course\\_id=7263](https://bartonccc.campusconcourse.com/view_syllabus?course_id=7263)

Office of Origin: Vice President of Instruction

Contacts:

- Associate Dean of Instruction
- Dean of Academics
- Dean of Workforce Training and Community Education
- Dean of Military Academics, Technical Education, and Outreach Programs



Virtual Campus

# MATH 1831 Business Calculus 20192 B1

SPRING 2022 Section 1 3 Credits 01/24/2022 to 03/20/2022

## Meeting Times

*Online classes do not have regular meeting times. Students are advised to block out a set period of time at least three times a week in which to engage in online coursework and watch the respective lecture videos. You will have weekly assignments.*

## Contact Information

Mr. Joseph Harrington

Email: [harringtonj@bartonccc.edu](mailto:harringtonj@bartonccc.edu)

Office: C-119

Phone: (620) 792-9334

Preferred Method of Communication: Canvas Inbox/Email Messaging System

## Office Hours

Monday, Tuesday, Wednesday, Thursday, Friday, 1:00 PM to 2:50 PM, Online via Zoom

Note that due to meetings, my availability during office hours can vary. Initially email me and we can work out an alternate time to meet (if necessary) and I will email you a link.

## Course Description

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A condensed study of differential and integral calculus with an emphasis on applications in the area of business and economics.

### Prerequisite(s)

MATH 1828 College Algebra with a grade of C or better OR MATH 1826 College Algebra with Review with a grade of C or better  
OR appropriate placement score

### Course As Viewed In the Total Curriculum

Business Calculus is an approved general education course at Barton Community College, which can be used to fulfill degree requirements as a fundamental mathematics course.

Business Calculus is designed to provide business and economic majors with a basic understanding of differential and integral calculus and its applications in business and economics. Students needing calculus but who are not business majors or are uncertain of their major should enroll in the 5 credit Calculus I, MATH 1832. Any student whose major program requires two or more calculus courses should also take MATH 1832 since it is a more in-depth study of differential and integral calculus.

The transferability of all courses will vary among institutions, and perhaps even among departments, colleges, or programs within an institution. Institutional requirements may also change without prior notification. Students are responsible to obtain relevant information from intended transfer institutions to insure that the courses the student enrolls in are the most appropriate set of courses for the transfer program.

## Outcomes & Competencies

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Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

### **Course Outcomes, Competencies, and Supplemental Competencies:**

- A. Utilize the definition of a limit to compute and interpret the nature of a function.
  - 1. Evaluate the limit of a function at a point both algebraically and graphically.
  - 2. Evaluate the limit of a function at infinity both algebraically and graphically.
  - 3. Determine the continuity of a function using the definition of a limit.
  - 4. Distinguish between average and instantaneous rates of change.
  - 5. Differentiate a function using the limit definition of a derivative.
- B. Apply the patterns of differentiation to find the derivative of a given function.
  - 1. Compute a derivative of a function involving powers, exponents and sums.
  - 2. Calculate a derivative of a function involving products and quotients.
  - 3. Produce the derivative of a function involving compositions of functions.
  - 4. Find the derivative of a function involving exponential and logarithmic functions.
  - 5. Differentiate a function that is defined implicitly.
- C. Compile and synthesize information concerning a function using derivation to sketch the graph of a function.
  - 1. Detect the critical point(s) of a function using the first derivative.
  - 2. Determine the inflection point(s) for a function using the second derivative.
  - 3. Find the intervals of increasing and decreasing and local extrema using the first derivative.
  - 4. Determine the concavity of a function using the second derivative.
  - 5. Sketch the graph of a function using information gathered from the first and second derivatives.

6. Identify vertical and horizontal asymptotes of a function.
  7. Analyze the graph of a function.
- D. Apply differentiation to theoretical and practical situations and interpret the results.
1. Use the derivative to find the marginal profit, marginal revenue and marginal cost.
  2. Use the derivative to find the equation of a tangent line to a curve at a given point.
  3. Use optimization techniques to find maximum revenue, minimum average cost and maximum profit in business applications.
  4. Solve related rate problems.
  5. Use differentials to estimate change of profit, cost and revenue as production changes.
  6. Compute the elasticity of demand.
- E. Utilize the definition of an antiderivative to perform integration and interpret the nature of a function.
1. Evaluate definite integrals using the Fundamental Theorem of Calculus.
  2. Integrate indefinite integrals.
  3. Integrate algebraic and exponential functions.
  4. Evaluate integrals of the form

## Materials

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# MyMathLab with Pearson eText –Access Card Package for Calculus for Business, Economics, Life Sciences & Social Sciences

**Author:** Barnett, Raymond A., Michael R. Ziegler, and Karl E. Byleen

**Publisher:** Pearson

**Edition:** 14th

**Availability:** Online Bookstore: <https://bartonline.ecampus.com/>

You can purchase the Access Code directly from Pearson within the course itself when the course starts with a credit card.

Various options are offered at a discount.

# Hardware

- Desktop Computer or Laptop (Mac or PC)
- Webcam and Microphone (Built-in or External) - for Proctoring
- Graphing Calculator - Texas Instruments TI 84/84+ editions

## \* Instructor Policies

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### Expectations of Students

Courteous, professional conduct is mandatory. Disruptive or offensive behavior will result in dismissal from the course.

### Late Policies

Orientation Assignments: To accommodate students who enroll after the start of the course and miss a due date, these assignments be accepted late with no penalty up until the close of Module O.

Discussion Threads: Any late postings will be accepted for half credit until the close of the respective Module.

Homework: Not accepted late. You need to pace yourself to complete all assigned homework by the respective due dates.

Exams: A 24-hour extension will be provided on the first Exam for a student having technical issues with Examity being able to demonstrate a good faith effort. As this is the first Exam, this may be the first time using the software, so mistakes can happen. This allowance is meant to recognize that fact. Otherwise, Exams are not accepted late.

Exceptions: Contact your instructor for reasonable requests for an exception based on illness, passing of a family member, deployment, etc.

### Extra Credit Policy

No Extra Credit is provided in this course

## Retake Policy

No Retakes are provided in this course

## Attendance Policy

Attendance in online classes is measured primarily by completion of assignments and participation. In this course I will measure your participation by you having: (1) successfully logged in each module, (2) completed all assignments by the end of the module, and (3) emailed questions when you are having difficulty

## Instructor Response Time and Grading Time

Instructor Response Time: The instructor will respond to emails within 24-hours, but will make every effort to respond to emails as soon as they are read.

Grading Time: For those assignments that are not automatically posted to the gradebook, the instructor will grade them within 24-hours after the due date. This includes the Examity Profile assignment, and any partial credit on the Exams which are reviewed by the instructor.

## Incomplete Grade Policy

An incomplete "I" is a temporary grade, agreed upon by the instructor, and awarded to a student that is unable to complete course requirements by the end of the academic term due to extremely extenuating circumstances. The student must initiate the request prior to the end of the academic term and currently be passing the course.

There are other rules and stipulations to an incomplete grade. As such, students are encouraged to communicate with the instructor as soon as possible if they are having difficulties with course completion. Incomplete grades are granted at the discretion of the instructor and are not automatic.

## ✓ Grading Methods

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Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. As a learning college, Barton uses the results from these various activities to develop and implement strategies to improve student learning.

**Failure to complete a graded assignment will result in a score of 0% for that assignment.**

### HOMEWORK

Homework covering the material will be assigned.

### DISCUSSION THREADS

Discussion threads are found in each module where you will interact with your classmates. Your initial post is required by the stated due date, subsequent posts responding to other students are due by the end of the respective module to allow people time to respond.

### PRE-TEST AND POST-TEST

These course assessments are used by the instructor to gauge your understanding and comprehension of the competencies within the course. The results are used to make improvements within the course.

### EXAMS

**In this class you will take your Exams remotely and they will be proctored by a service called Examity®.**

A Student Quick-Guide will be provided on how to use Examity®. Please log in as soon as possible to set up your profile. You will not be able to schedule exams until your profile is complete.

**Examity® system requirements are:**

- Desktop or laptop computer (**tablets, phones, and Chromebooks are not supported**)

- Webcam, microphone, and speakers (built-in or external)
- Internet: An upload and download speed of at least 2Mbps
- Operating systems: Windows XP or newer, Mac OS X 10.8 (Mountain Lion) – or newer
- Browser: Google Chrome only, disable the pop-up blocker
- In your Eximity Dashboard, **run the Computer Requirements Check** to ensure your system is ready to test

If you have any questions or concerns, contact Eximity's technical support team 24/7 via email at [support@eximity.com](mailto:support@eximity.com) or phone at (855)-392-6489, or through the Live Chat feature on the Eximity dashboard.

- **CHAPTER EXAMS**

Exams will be given. The number of questions on each varies according to the type and length of calculations required.

- **FINAL EXAM**

There is a comprehensive final exam given in the course.

## Criteria

Type	Weight	Topic	Notes
Orientation Quizzes	5%		Module 0
Discussion Threads	15%		
Homework	15%		
Practice/Reviews	0%		
Exams	45%		Proctored

Type	Weight	Topic	Notes
Final Exam	20%		Proctored

## Grading Scale

Grade	Range	Notes
A	90 - 100	
B	80 - 89.99	
C	70 - 79.99	
D	60 - 69.99	
F	Below 60%	

## Institutional Policies

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### Academic Integrity

Academic Integrity is scholarship based on honesty, trust, respect, responsibility, fairness, and courage. Barton Community College pledges to uphold these core values of integrity in all aspects of teaching and learning. Students are the authors of submitted work and shall give credit to outside sources and other's work or ideas.

In all aspects undertaken by students, faculty, staff, and all other stakeholders of Barton Community College, the following pledge applies: On my honor as a Cougar, I am acting with integrity in academics. I am acting per personal and institutional values and refraining from any form of academic dishonesty, and I will not tolerate the academic dishonesty of others.

Acts of academic dishonesty, intended or unintended, are subject to Procedure 2502 [Academic Integrity](#) and may result in the grade of XF. Barton defines an XF grade as failure as a result of a violation of Academic Integrity.

## Disability Services

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at [disabilityservices@bartonccc.edu](mailto:disabilityservices@bartonccc.edu)

## Student Code of Conduct

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

## Civil Rights Equity & Title IX

Barton Community College adheres to all federal and state civil rights laws, including Title IX, banning discrimination in public institutions of higher education. The College will not discriminate against any employee, applicant for employment, student or applicant for admission on the basis of many protected categories. Please refer to the entire policy at the link below.

Title IX protects against discrimination on the basis of sex, gender, sexual orientation, gender identity, including discrimination due to all forms of sexual harassment and sexual misconduct.

*Annually, all enrolled students are provided the opportunity to participate in online Title IX training. The training link is sent to the student's Barton issued email account generally within the first month of enrollment.*

Barton's Civil Rights Equity Policy (Policy 1132) is found at: [https://docs.bartonccc.edu/policies/1132-Civil\\_Rights\\_Equity\\_Resolution.pdf](https://docs.bartonccc.edu/policies/1132-Civil_Rights_Equity_Resolution.pdf) 

## Problem Resolution

The College encourages an open and frank atmosphere in which any problem, complaint, suggestion, or question receives a timely response from the appropriate college staff. If a student disagrees with established rules of conduct, policies, practices, or if they feel their rights have been infringed upon, they can express their concern through the problem resolution procedure. No student will be penalized for using the problem resolution procedure, or for voicing a complaint in a timely and business-like manner. Students are directed to the procedure linked below and are advised to pay attention to the limitations of the procedure and the strict adherence to timelines noted.

[https://docs.bartonccc.edu/procedures/2615-problem\\_resolution.pdf](https://docs.bartonccc.edu/procedures/2615-problem_resolution.pdf) 

## Course Outline

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*See Outline link on the left hand side of the course navigation for course dates.*

### FUNCTIONS

- Functions (Section 1.1)
- Elementary Functions: Graphs and Transformations (Section 1.2)
- Linear and Quadratic Functions (Section 1.3)
- Polynomial and Rational Functions (Section 1.4)
- Exponential Functions (Section 1.5)
- Logarithmic Functions (Section 1.6)

### LIMITS

- Introduction to Limits (Section 2.1)
- Infinite Limits and Limits at Infinity (Section 2.2)
- Continuity (Section 2.3)

### DERIVATIVES & MARGINAL ANALYSIS

- The Derivative (Section 2.4)
- Basic Differentiation Properties (Section 2.5)
- Differentials (Section 2.6)
- Marginal Analysis in Business and Economics (Section 2.7)
- Derivatives of Exponential and Logarithmic Functions (Section 3.2)
- Derivatives of Products and Quotients (Section 3.3)
- The Chain Rule (Section 3.4)
- Implicit Differentiation (Section 3.5)
- Related Rates (Section 3.6)
- Elasticity of Demand (Section 3.7)

### GRAPHING & OPTIMIZATION

- First Derivative and Graphs (Section 4.1)
- Second Derivative and Graphs (Section 4.2)
- L'Hôpital's Rule (Section 4.3)
- Curve-Sketching Techniques (Section 4.4)
- Absolute Maxima and Minima (Section 4.5)
- Optimization (Section 4.6)

### INTEGRATION

- Antiderivatives and Indefinite Integrals (Section 5.1)
- Integration by Substitution (Section 5.2)
- Differential Equations; Growth and Decay (Section 5.3)
- The Definite Integral (Section 5.4)
- The Fundamental Theorem of Calculus (Section 5.5)

## Additional Items

# Tutoring Information

For online students, BARTONline has one-on-one **Tutoring Services** available 24/7. These services are provided by Tutor.com for the benefit of Barton Students.

## Tutoring for Military Students

For members of the Military please visit the [Tutor.com for U.S. Military Families](#) page for services available to you.

## Tutoring for Non-Military Students

For those students that are not affiliated with the Military please request login information by email from [tutoringservices@bartonccc.edu](mailto:tutoringservices@bartonccc.edu). Once you receive your login information from Tutoring Services you will then access the [Tutor.com Login](#) page

Tutors are also available to assist those close to Great Bend or Fort Riley at the respective campuses.