Course Information

Course Number: MATH 1325

Course Title: Calculus for Business and Social Sciences

Course Description: This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2413, Calculus I. Graphing calculator required. Lab required.

Course Credit Hours: 3
        Lecture Hours: 3
            Lab Hours: 1

Prerequisite: MATH 1314, or MATH 1324, or MATH 1414; or equivalent

Student Learning Outcomes:

- **State-mandated Outcomes:** Upon successful completion of this course, students will:
  1. Apply calculus to solve business, economics, and social sciences problems.
  2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
  3. Solve application problems involving implicit differentiation and related rates.
  4. Solve optimization problems with emphasis on business and social sciences applications.
  5. Determine appropriate technique(s) of integration.
  6. Integrate functions using the method of integration by parts or substitution, as appropriate.
  7. Solve business, economics, and social sciences applications problems using integration techniques.

- **Additional Collin Outcomes:**
  1. Calculate the rate of change of a function, both over an interval and instantaneously. (Empirical/Quantitative Skills)
  2. Use the derivative to compute rates of change and analyze marginal changes in economic applications. (Communication Skills, Critical Thinking)
  3. Construct accurate graphs of functions using the concepts of calculus. (Empirical/Quantitative Skills, Communication Skills, Critical Thinking)
  4. Identify optimum values of functions and apply these values to practical situations, including related rates. (Empirical/Quantitative Skills, Communication Skills, Critical Thinking)
  5. Solve problems involving logarithmic or exponential growth and decay using ideas of calculus. (Empirical/Quantitative Skills, Communication Skills, Critical Thinking)
  6. Find anti-derivatives, both as indefinite integrals and as solutions to simple differential equations. (Empirical/Quantitative Skills)
  7. Use the Fundamental Theorem of Calculus to evaluate definite integrals and solve their applications including average value. (Empirical/Quantitative Skills, Communication Skills, Critical Thinking)

Withdrawal Policy: See the current *Collin Registration Guide* for last day to withdraw.

Collin College Academic Policies: See the current *Collin Student Handbook.*

Americans with Disabilities Act: Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required affording equal opportunity. It is the student's responsibility to contact the ACCESS office to arrange for appropriate accommodations. (CPC: B-335 or 972.548.6816, PRC: F-144 or 972.881.5950, SCC: D-140 or 972.881.5898 (V/TTD: 972.881.5950)) See the current *Collin Student Handbook* for additional information.

Instructor's Name: Dr. Katerina Vishnyakova

Office Number: Lawler Hall LH-122 (inside the faculty suite LH-117) Frisco campus

Office Hours: **MW**   9:00 – 10:50 am; 12:20 – 12:50 pm
                W   5:45 – 6:45 pm
                TR   8:45 – 9:45 am
                Friday   and other times by appointment **ONLY**
Phone Number: (972) 377-1532
Email: kvishnyakova@collin.edu. You can e-mail me with homework questions or concerns. **Send all e-mail correspondence to me through Collin College Mail.** I cannot discuss any class or confidential information with students through external e-mail addresses. E-mails from external accounts will be checked last and might not be answered at all if subject matter is considered confidential. Always include your full name, course number, and the reason for the e-mail in the subject line when writing e-mails. Please allow 24 hours for instructor's response. Please address me as "Professor" or "Doctor" in your e-mails. Any e-mails that include texting jargon rather than formal language (for example, "u" instead of "you") will not be answered.
Website: http://faculty.collin.edu/kvishnyakova

Class Information:

    Section Number: P02

    Meeting Times: MW 1:00 p.m. – 2:15 p.m.   **Meeting Location:** LH 226

Census Day: February 3, 2020

College Repeat Policy: Beginning Fall 2016, Texas residents attempting a course more than twice at Collin College are subject to regular tuition plus an additional $50 per semester credit hour. Refer to the Collin College website for a complete list of courses exempt from the course repeat tuition and how to qualify for exemptions from the higher tuition rate: http//www.collin.edu/gettingstarted/register/withdrawal.html

Course Resources: MyMathLab Access Code for online assignments **and** textbook *Calculus with Applications*, 11th edition, Lial, Greenwell, Ritchey, 2016 Pearson Education, Inc., ISBN-13: 9780321979421. The textbook is also available as an e-book through MyMathLab

Supplies: A graphing calculator is required and the TI 83, TI 83 Plus, or TI 84 is preferred. The TI-Nspire calculator is only allowed with the TI-84 faceplate. **Students are NOT allowed to use a calculator that has any computer algebra system (CAS) built in.** (For example, you may not use a TI-89/TI-92 calculator in this class.)

Lateral Transfer Policy:
Lateral transfers will not be granted after the 4th week of class or after the first exam, whichever comes first. Exceptions to this may only be for a documented change in work schedule and/or family emergencies. If a student does transfer to another section, **all previous grades will accompany the student.**

Course Requirements: Attend class as scheduled and complete the required tests, lab assignments, and final examination, and any other assignments required by the instructor.

- Participation in class discussions is strongly encouraged. Be engaged and ask questions to ensure understanding of the material.
- Be courteous to your fellow classmates. Respect their opinions.
- All electronic devices (except calculator) must be **turned off or silenced** before entering the classroom. No text messaging and no open laptop computers in class. Students may be asked to leave the classroom if in violation of this policy. If such an event occurs, it will count as a tardy. After a second offense, the student will be reported to the Dean of Students office. If an emergency arises which necessitates the use of a cell phone, the student must obtain an exception from the instructor in advance.
- College rules do not permit you to eat or drink in the classroom.

METHOD OF EVALUATION: Your grade will be determined by using the following:
Average of the Tests: 55%
Labs: 10%
In-class quizzes, activities and participation: 10%
Homework: 10%
Comprehensive final exam: 15%

GRADING RATIONALE:
90 – 100 - **A**   80 – 89 - **B**   70 – 79 - **C**   60 – 69 - **D**   0 – 59 - **F**
An "I" grade will only be assigned in extreme, well-substantiated circumstances, passing grades only.

Homework: There will be a *MyMathLab Homework* assignment for **every** section covered in class. You will be responsible to register using the pin number assigned to you through your Student Access Kit. This code may be purchased online or through the bookstore. The course ID for this class is **vishnyakova27358**.

Homework is very important and is absolutely necessary for the successful completion of the course. Homework exercises are **automatically assigned** after the corresponding section is covered in class. The student is expected to complete the work by the due date indicated in the course calendar. If you are not satisfied with your score for a particular homework you can rework the assignment until all the problems are correct before the assigned due date. All homework can be worked after the due date, but the penalty will apply. **Deduction of 7 percent per day will apply only to questions scored after the due date**. **It is important to understand that a non-submitted assignment will result in a grade of zero that will affect your homework and final average.**

In-class quizzes: Periodic in-class quizzes are given during the term and will be based on problems discussed in class and homework assignments. The quizzes are graded on a point system. Your goal is to accumulate as many points as possible by the end of the semester. You must show your work to receive maximum quiz points. There are no make-ups for quizzes, which are normally administered at the beginning of class. Furthermore, in preparation for each lecture please read ahead the sections covered that day. Leave the classroom with answers, not questions.

Examinations for this course include in-class quizzes; four class tests and a comprehensive final examination (2 hours). Please write ALL your work on the exam in an orderly fashion. Questions will be very similar to those found in the assignments/reviews. You must show your work to receive maximum test points. Write neatly! If I can't read it – I can't grade it! All examinations will be given as outlined in the tentative calendar. All exams will be taken in the classroom. If you know ahead of time that you will have to miss a test, you can plan to take it early. Talk to me in person and e-mail me with the details. Extreme well-documented emergencies will be taken into consideration on an individual basis. The graded tests will be returned within a week after the test was taken. If you have

a question about the exam grade, please make an appointment and come to my office to discuss any issues. All grade issues <u>must be resolved within one week</u> after graded papers are returned to class. If you missed the day the test was returned you can pick it up during my office hours, but you will not have an extension for grade discussion.

All tests are closed book, no notes. If for any reason you miss one test during the semester, your final exam score will replace the zero score for the test. If all tests are taken as scheduled throughout the semester, the final exam score can replace the lowest test score if it's in student's best interest.

Labs: There will be four Lab assignments due as listed on the tentative schedule. Even though you will be working on Labs outside of class, it is still an assignment and must be complete by each student **<u>individually</u>**. Copying answers from a classmate is <u>NOT acceptable</u> and will be considered a violation of academic integrity. The student will be reported to the Dean of Students office for further investigation. NO LATE LABS WILL BE ACCEPTED.

I <u>will not</u> give out grades over e-mail or by phone. If you have any questions about your progress in class or your grades, you are welcome to talk to me during office hours or to make an appointment.

POLICY ON MISSED TESTS AND ASSIGNMENTS: Make-up examinations will not be given. The course calendar provides the due dates for all upcoming assignments and tests, and it is student's responsibility to know the due dates and be in class on time to turn in work and take the test. If you know in advance that you'll miss the day when the test is scheduled, notify your instructor so that special arrangements can be made (for example, you may be allowed to take the test a day earlier.) If for any reason you miss one test during semester, your final exam score will replace the zero score for the test. Notify the instructor immediately if an unexpected event impacting your ability to attend class and/or take the test occurs.

There are some <u>class rules regarding missed coursework</u> and exams that students should be aware of:
  1. Class policy is that no make-up exams/assignments will be given automatically. If a student cannot be present in class to take the quiz or exam, the student must contact me immediately by e-mail through Cougar Mail or leaving a message on my office phone within seven (7) hours of missing the class.
  2. Do not assume that you are eligible for a make-up test. Only students with documented excuses (hospital or court papers, doctor's note, death in the family, etc) will be considered for a make-up. Professor reserves the right to make decisions on a case by case basis.

ATTENDANCE POLICY: Attendance is expected of all students. I strongly believe that attending and participating in class is a major factor in students' success. There are NO extra points for attendance or penalty for being absent. If a student is unable to attend, it is his/her responsibility to obtain missed material/notes. *<u>Missing a class is not an excuse to be unprepared for quizzes or not knowing the material.</u>* If there is no contact from a student regarding an absence initiated within a week after the absence, the student will receive a zero on any material or assignment that was missed.

Attendance will be taken each class period. **You will receive a tardy mark if you leave early or come in later than 5 minutes after the class starts**. The time will be decided by the clock found on the wall in the classroom. If the clock is off, the time will be determined by the instructor's watch. **<u>Three tardy marks are equivalent to an absence</u>**. Disruptive or disrespectful behavior of any kind will not be tolerated. If you cannot participate positively in class, you will be asked to leave. In accordance with section *Classroom Dismissal by Faculty Member* "If a student is disruptive in class … a faculty member has the right to temporarily dismiss the student from class …"

I understand that at times there are **unexpected one-time events** (for example, traffic accident, family issues). I suggest that you have the contact information of one of your peers to inform them on such occasion. It should be considered as an emergency situation and not as a regular excuse for being late. If you arrive to class late, please be discreet. Enter the class quietly holding the door until it is completely closed, have all your notes and supplies in your hands so you don't need to distract your peers by taking objects from your bag. Please take the back seat in the classroom. **If an assignment is due at the beginning of the class, don't try to hand it to me when you join the class.** We can discuss that after the class. Please consider that you might NOT be able to submit it.

WITHDRAWAL POLICY: Students who enroll as an entering freshman or a first-time college student in undergraduate courses at any Texas public community college, technical institute, health sciences institution, or any public university offering undergraduate courses must comply with the legislation of TEC51.907. TEC51.907 states that students who enroll for the first time during the fall 2007 semester or any subsequent semester are subject to the *course drop limit of six course drops*. This includes any course a transfer student has dropped at another institution.
Drops **after** the term census date are considered **withdrawals** and appear as a "**W**" on the transcript. Students cannot withdraw on CougarWeb. The last day to withdraw from spring 2020 semester is *Friday, March 20, by 5 p.m*. Students who fail to withdraw, will receive a performance grade.

RELIGIOUS HOLY DAYS: In accordance with section 51.911 of the Texas Education Code, the college will allow a student who is absent from class for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within a reasonable time. A copy of the state rules and procedures regarding holy days and the form for notification of absence from each class under this provision are available from the Admissions and Records Office. Please refer to the current *Collin Student Handbook*.

SOBI: Collin College's Strategies of Behavioral Intervention (SOBI) team is an interdisciplinary, college-wide team whose mission is to provide support for students, faculty, and staff, and to facilitate a positive and effective learning environment. In order to accomplish this, the SOBI team has designed a process for assisting students who may display various levels of concerning behavior (e.g., strange or unusual behavior; changes in dress, personal hygiene, or physical appearance; threats of harm to self or others; etc.). Any behavior that becomes a concern to you or that negatively affects your ability to succeed as a student at Collin College may be referred to SOBI.

ACADEMIC ETHICS: Every member of the Collin College community is expected to maintain the highest standards of academic integrity. Collin College may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes, but is not limited to, statements, acts, or omissions related to applications for enrollment or the award of a degree, and/or the submission of one's own work material that is not one's own. Scholastic dishonesty may involve, but is not limited to, one or more of the following acts: cheating, plagiarism, collusion, use of annotated texts or teacher's editions, use of information about exams posted on the Internet or electronic medium, and/or falsifying academic records. While specific examples are listed below, this is not an exhaustive list and scholastic dishonesty may encompass other conduct, including any conduct through electronic or computerized means:

Plagiarism is the use of an author's words or ideas as if they were one's own without giving credit to the source, including, but not limited to, failure to acknowledge a direct quotation.

Cheating is the willful giving or receiving of information in an unauthorized manner during an examination; collaborating with another student during an examination without authority; using, buying, selling, soliciting, stealing, or otherwise obtaining course assignments and/or examination questions in advance, copying computer or Internet files, using someone else's work for assignments as if it were one's own; or any other dishonest means of attempting to fulfill the requirements of a course.

Collusion is intentionally or unintentionally aiding or attempting to aid another in an act of scholastic dishonesty, including but not limited to, failing to secure academic work; providing a paper or project to another student; providing an inappropriate level of assistance; communicating answers to a classmate about an

examination or any other course assignment; removing tests or answer sheets from a test site, and allowing a classmate to copy answers.

If a student is found responsible for academic dishonesty, the professor reserves the right to assign a penalty ranging from a "0" on the assignment or assessment to an "F" in the course. *See the current Collin Student Handbook for additional information.*

Technology Use in the Classroom: The use of a cell phone, Bluetooth, and/or laptop is PROHIBITED during class. Cell phones must be turned off or put on silent (not vibrate) during class. If your cell phone continually rings during class, it will be considered disruptive behavior resulting in disciplinary action through the Dean of Students office. Other electronic devices are prohibited without prior approval of the instructor.

No videotaping or recording of an instructor or classmates is allowed without prior permission from the instructor. If a student wishes to record lectures, he/she will need to make an appointment to discuss policy on use of an electronic device and sign an agreement. It is understood that if permission for recordings is given, it is for student's **individual use ONLY** and may not be distributed to others or posted on any online platform without permission from the instructor.

Tutoring Services: All students are expected to study daily for this course. The material you learn today will be used tomorrow. If you find that you need extra help, please:

- Come by my office during office hours and I will help you. If your schedule will not allow you to come to my office house, see me and we can schedule an appointment for another time.

- Take advantage of the Math Lab. It is a free tutoring center for math students enrolled at Collin. There are math labs on all three campuses. The PRC math lab is located in room F-148. Call 972-377-1639 for hours or check my website. Student solution manuals are available, if you do not want to purchase one. TI calculators are available for use in the lab. Private tutor list is available in the Math Lab. You are responsible for contacting any private tutor and making the arrangements.

- Fill out a tutor request form at the ACCESS office in F144 (PRC). The ACCESS office provides each student with FREE group tutoring or FREE online tutoring. You can get additional information and tutoring schedule at http://www.collin.edu/studentresources/tutoring/ Please contact Amy Myrick at 972 881-5950 or 972-377-1785 if you have additional questions.

- You can check out graphing calculator for 4 hours in the library on a daily basis.

- Form a study group with a few classmates. The best way to learn is to teach.

TENTATIVE MATH 1325.P02 COURSE CALENDAR:

Week	Date	Material to cover	Comments/Due dates
1	**January 22**	Introductions, Syllabus, PASS, 3.1 Limits	**WELCOME!** ☺
2	**January 27**	3.1 Limits	
	January 29	3.2 Continuity; 3.3 Rates of Change	**HW 3.1 is due**

3	February 3	3.3 Rates of Change; 3.4 Definition of the Derivative	**HW 3.2 is due** **Census date – February 3**
	February 5	3.5 Graphical Differentiation; 4.1 Techniques for Finding Derivatives	**HW 3.3 & 3.4 are due**
4	February 10	4.1 Techniques for Finding Derivatives & 4.2 Derivatives of Products and Quotients	**HW 3.5 is due**
	February 12	*Review for Test 1*	**HW 4.1 & 4.2 are due**
5	February 17	**Test 1 in class**	
	February 19	4.3 The Chain Rule	**LAB 1 is due**
6	February 24	4.4 Derivatives of Exponential Functions; 4.5 Derivatives of Logarithmic Functions	**HW 4.3 is due**
	February 26	4.5 Derivatives of Logarithmic Functions; 5.1 Increasing and Decreasing Functions	**HW 4.4 is due**
7	March 2	5.1 Increasing and Decreasing Functions; 5.2 Relative Extrema	**HW 4.5 is due**
	March 4	5.3 Higher Derivatives, Concavity, and the Second Derivative Test	**HW 5.1 is due**
8	March 9-15	**Spring Break! No classes!**	
9	March 16	5.3 Higher Derivatives, Concavity, and the Second Derivative Test; 5.4 Curve Sketching	**HW 5.2 is due**
	March 18	*Review for Test 2*	**HW 5.3 & 5.4 are due; Last** **day to withdraw** – **March 20**
10	March 23	**Test 2 in class**	
	March 25	6.1 Absolute Extrema; 6.2 Applications of Extrema	**LAB 2 is due**
11	March 30	6.2 Applications of Extrema; 6.3 Further Business Applications	**HW 6.1 & 6.2 are due**
	April 1	6.3 Further Business Applications; 6.4 Implicit Differentiation	**HW 6.3 is due**
12	April 6	6.5 Related Rates & 6.6 Differentials	**HW 6.4 is due**
	April 8	12.7 L'Hospital's Rule, *Review for Test 3*	**HW 6.5 & 6.6 are due**
13	April 13	**Test 3 in class**	**HW 12.7 is due**
	April 15	7.1 Antiderivatives; 7.2 Substitution	**LAB 3 is due**
14	April 20	7.2 Substitution; 7.3 Area and the Definite Integral	**HW 7.1 is due**
	April 22	7.3 Area and the Definite Integral; 7.4 The Fundamental Theorem of Calculus	**HW 7.2 is due**

15	**April 27**	7.4 The Fundamental Theorem of Calculus	**HW 7.3 is due**
	April 29	8.2 Average Value & 10.1 Solutions of Elementary and Separable Differential Equations; ***Review for Test 4***	**HW 7.4 is due**
	May 4	**Test 4 in class**	**HW 8.2 & 10.1 are due**
	May 6	***Review for Final Exam***	**LAB 4 is due**
16	**May 13**	**Final Exam** **1:00 pm – 3:00 pm (room LH 226)**	

Note: The instructor reserves the right to make changes to this syllabus during the semester. Changes will be provided in writing during class hours.

Expectation: Maintaining a positive learning environment

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. Your instructor takes this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

Creating Opportunities for Learning

As your instructor, it is my responsibility to present learning opportunities through the course syllabus, lectures, labs, in-class and out-of-class exercises and assignments. It is your responsibility to do the learning by completing the readings, by attending class and by participating in the class discussions and assessment/lab exercises.

Tracking Your Success at Learning

Your instructor will conduct quizzes, exams and assessments that you can use to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus. If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. Your instructor welcomes a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.

SUBMISSION GUIDELINES FOR WRITTEN ASSIGNMENTS

The following standards apply to all homework, class work, and other turned-in assignments. The instructor reserves the right to not accept or deduct points from assignments that do not follow these guidelines.

- Assignments without student's name, course number, and section number will not be graded.
- Problems should be worked down (not across) the page in the order they were assigned.
- Multiple pages should be stapled.
- Illegible and/or incomprehensible work (as determined by the instructor) will not be graded.
- Assignments with frayed "spiral" edges will not be accepted.
- Answers should be boxed or circled for clarity. Always give exact answers unless asked for approximations. (i.e. fractions are preferred over rounded-off decimals)
- Show ALL your work and that work must support the answer. If there is absolutely no work for the problem, copy the problem and state the solution(s).
- Simplify your answers. If the problem asks to graph, please show the graph.
- Assignments are due when called for; late work will NOT be accepted!!!