VIDEO-Enhanced Math 136: Calculus I

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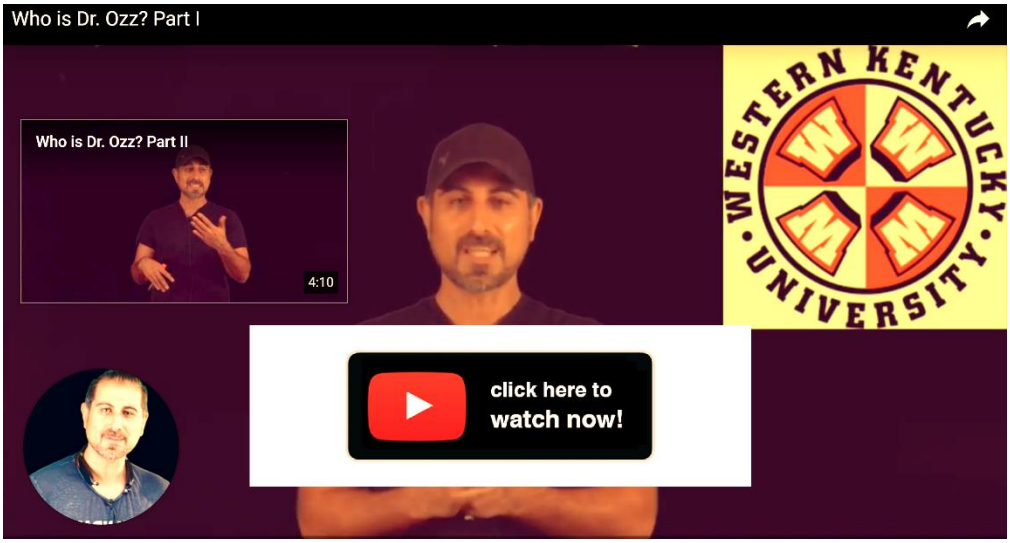
Who is Dr. Ozz? Part I (click here or on the picture to watch)



LEARNING OBJECTIVES

At the end of this course, you will be able to:

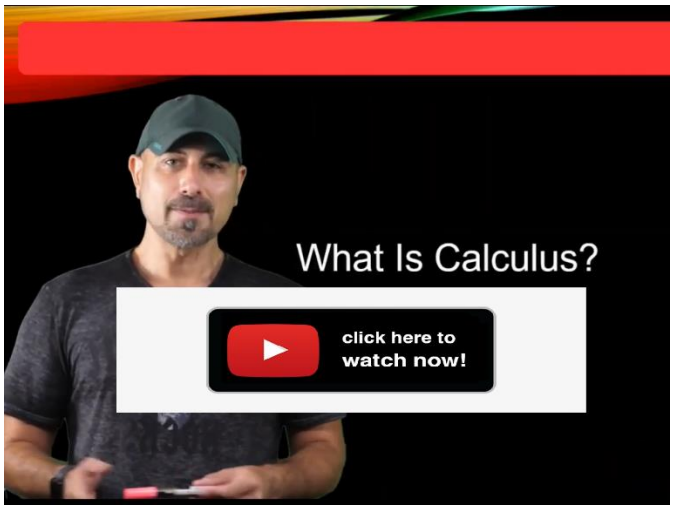
1. INTERPRET information presented in mathematical and/or statistical forms.
2. ILLUSTRATE and COMMUNICATE mathematical and/or statistical information symbolically, visually and/or numerically.
3. DETERMINE when computations are needed and EXECUTE the appropriate computations.
4. APPLY an appropriate model to the problem to be solved.
5. MAKE inferences, evaluate assumptions, and assess limitations in estimation modeling and/or statistical analysis.

Check the end of the syllabus to learn about specific learning objectives for each covered chapter.

PREREQUISITES:

1. Four years of high school algebra and either
   - an algebra score of at least 20 on the Math Placement Exam (MPE)
   - a Math ACT score of at least 27 and a GPA of at least 3.0 in high school mathematics **OR**
2. Math 117 or Math 118 with a grade of C or better

WHAT is CALCULUS?
Click here or on the video to watch

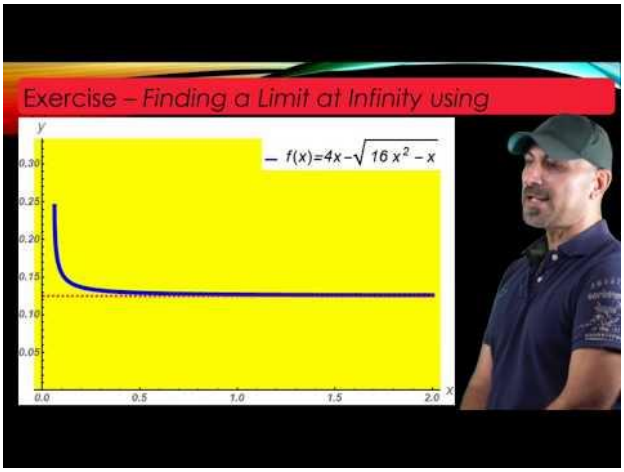


COURSE DESCRIPTION
Calculus I

MATH 136 satisfies the Quantitative Reasoning portion of WKU's Colonnade Program. A course in one-variable calculus, including topics from analytic geometry. Limits, derivatives, integration, and applications of polynomial, rational, trigonometric, and transcendental functions.

This course is enriched by recitations (problem sections), which guide students through practice exercises via videos recorded by the instructor.

- **Videos and lectures are provided to enhance your learning for the first Calculus course in a series of Calculus courses.**
- **These videos are professionally RECORDED and EDITED by Dr. Ozz.**
- **Solutions for key problems of Calculus are provided in the videos for you to go through at your own pace in your spare time.**
- **Click on the videos below to see some examples.**



COURSE WEBSITE

We will be using WKU's Blackboard (as the homepage) and Cengage's WebAssign as technology based instruments for this course. Lecture notes, recitations, course videos, and announcements are all in Blackboard. All assignments will be taken in WebAssign.

Please note, all course announcements posted in Blackboard will be sent to your WKU EMAIL address.

REQUIRED MATERIALS

Textbook: Calculus of a Single Variable: Early Transcendental Functions (with WebAssign Access), 7th Edition, by Larson, ISBN 281000002784B
ISBN for optional low-cost loose-leaf copy: 9781337955737
(Also available online at www.webassign.net)

WebAssign access code is required for tests, quizzes, and homework assignments. Course ID is not needed. Register through Blackboard.

Calculator: A graphing calculator (TI-83 Plus or TI-84 Plus or Silver Edition), except the TI-92 or TI-89 or equivalent, is recommended for the class. The software Mathematica may also be used time to time during the lectures.

Textbook Information: (Please read before purchasing anything for this course.)
This course participates in The WKU Store's Day One Access program. This program is designed to provide immediate access to required materials for all students at prices cheaper than any other option.

Required materials will be available to you automatically (via Blackboard) by enrolling in this course unless you choose to opt-out. By participating in this program, The WKU Store will bill your Student Billing account, and you will see a charge appear under this Term along with Tuition and Fees ("Account Summary by Term" under the Student Services tab) labelled as either "The WKU Store Purchases" or "Day One Access." For more information on this program or to opt-out of participation, please visit the Day One Access information page.

The cost of the e-book and Webassign is approximately $80, which will be charged to your student bill one week following your enrollment in the course. Students who stay enrolled in Day One Access are also eligible to purchase an optional low-cost loose-leaf copy of the textbook for only $45.00. (Students who opt-out of Day One Access are not eligible to purchase this low-cost loose-leaf version of the book.)

Students who wish to opt-out of this program may do so. However, you must opt-out within the first week of your enrollment to avoid being charged for Day One Access. By opting out, you agree to have your e-book and Webassign access terminated and you will be responsible to obtaining the required materials on your own. If you have purchased the optional low-cost loose-leaf book from The WKU Store, you must return it before the

opt-out deadline in order complete the opt-out process. It must also be in its original shrink-wrap.

**********Contact WebAssign directly if you have a technical issue with the website. The phone number is (800) 955 8275*********

RECITATIONS and VIDEOS

Recitations for this course are designed via recorded videos. At every course submodule, there is a PowerPoint file where you can find the links to the recitation questions and the videos. For each section, there are 3-8 videos with solved exercises by the instructor, which are similar to the ones in the assignments. It is recommended to read the lecture notes first, and then get engaged with videos in the recitations.

HOMEWORK (15%)

In total, 30 homework assignments and four chapter reviews are to be completed in the online assessment system, WebAssign. It is your responsibility to keep up with the homework assignments. You will be allowed TEN tries for each question. A grade of at least 70% will be necessary on each assignment for a student to be allowed to take the next available assignment. Technical difficulty is not a valid excuse for missing homework. For each homework assignment, there are 0-3 questions to turn in your hand-written work for instructor feedback. Simply take a picture of your hand-written work, and upload the file to WebAssign. The feedback of the instructor will be provided back to you in a few days after the assignment is turned in. Your five lowest homework scores will be dropped at the end of the course before calculating your final grade.

Please email the instructor when you have completed each homework to prompt him to provide constructive feedback for your hand-written solution(s).

QUIZZES (30%)

In total, 15 quizzes are to be completed in the online assessment system, WebAssign. Every quiz involves questions from the preceding two sections. You will have 75 minutes to complete each quiz. You will be allowed ONE try for multiple-choice questions and THREE tries for all other questions. In each quiz, there are 1-2 questions for which you will need to turn in your hand-written work for instructor grading. Simply take a picture or your hand-written work, and upload the file to the system at WebAssign. For those questions, WebAssign grading will not be taken into consideration. Your graded work will be provided back to you in a few days after the assignment is turned in. Your four lowest quiz scores will be dropped before calculating your final grade.

Please email the instructor when you have completed each quiz to notify him grading the written portion of the quiz.

TESTS (20+15%) and FINAL EXAM (20%)

There will be two 120-minute tests and a final exam. All exams will be taken online in WebAssign. Only non-graphing TI-83/84 calculators (except the TI-92 or TI-89 or equivalent) are allowed for Test Center-proctored exams. Formula sheet(s) may be provided. You will need to provide the details of each question (show your work) on scratch paper and upload images documenting your work to WebAssign.

Test 1 and the Final Exam must be taken at a testing center, at either WKU or a certified proctoring location near you. Please keep in mind that there may be an associated proctoring fee at non-WKU testing centers. For more information on scheduling proctored exams, please visit On Demand's website.

Please email the instructor when you have completed each exam to prompt him grade the written portion.

FORMATIVE COURSE ASSESSMENT SURVEYs (100 POINTS OF EXTRA CREDIT for each)

To close the teaching-to-learning loop with your meaningful feedback, two formative course assessment surveys are given. Each survey consists of questions examining your overall learning experience and impression of the instructional videos, quizzes, homework assignments, online assessment system, and other course resources. The surveys will also contain a series of open-ended questions, which are my favorite because they give you the freedom to express your perception of the course. The first survey will be available in Blackboard at the end of the Chapter 2 module. The feedback you provide is very essential for me and will be used to affect immediate adjustments in the day-to-day operations of the course. Another survey will be available at the end of Chapter 4 to make sure that the student learning experience improved steadily. You will be given extra credit of 100 points by participating in each survey.

GRADING (100%)

The course contains 30 homework assignments, 4 chapter review assignments, 15 quizzes, 2 tests, and a final exam.

Here is the grading scheme:

15% Homework (online)
30% Quizzes (online)
15% Test 1 (proctored at a testing center)
20% Test 2 (online)
20% Comprehensive Final Exam (proctored at a testing center)
2% Formative Course Assessment Surveys (Extra Credit)

The grading scale will be as follows:
A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69
F = 59% and lower

MEETING TIMES

As this is an online course, no physical meetings are required. This is also a self-paced course, so you can complete this course in as little as seven weeks or take up to nine to twelve months to complete the course. Contact WKU On Demand to learn the exact deadline for completion of the course.

COMMUNICATION BY THE INSTRUCTOR

The best way to contact me is via email. My email address is provided at the beginning of the syllabus. I usually check my email on a daily basis during the school year and at least every few days during the summer and winter breaks. If I am out of the country, the frequency I check my email will vary depending on my access to the internet, but I can still usually check it at least every few days. Regardless of the time of year, if you send me email over the weekend it may take more time for me to respond than through the weekdays. If necessary, we may be able to arrange a meeting over the phone, Zoom, Skype, or face-to-face.

STUDENT RESOURCES PORTAL

There is a student resource portal (http://www.wku.edu/online/srp/) that you can access to help succeed in the course.

TITLE IX MISCONDUXT/ASSAULT STATEMENT

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at at https://www.wku.edu/policies/docs/182.pdf and Discrimination and Harassment Policy (#0.2040) at https://www.wku.edu/policies/docs/251.pdf.

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are

"Responsible Employees" of the University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

ADA STATEMENT

In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu. Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

ACADEMIC DISHONESTY

Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the coursework in which the act is detected or a failing grade in the course without possibility of withdrawal. The faculty member may also present the case to the Office of Judicial Affairs for disciplinary sanctions.

CHAPTER OBJECTIVES

By the end of the course, you will be able to:

Chapter 2 (2.1-2.5). Limits

- Use graphical and numerical evidence to estimate limits and identify situations where limits fail to exist.
- Apply rules to calculate limits.
- Use the limit concept to determine where a function is continuous.
- Determine infinite limits from the left and right, find vertical asymptotes

Chapter 3 (3.1-3.8). Derivatives

- Use the limit definition to calculate a derivative, or to determine when a derivative fails to exist.
- Calculate derivatives (of first and higher orders) with pencil and paper, without calculator or computer algebra software, using:
    - Linearity of the derivative
    - Rules for products and quotients and the Chain Rule
    - Rules for constants, powers, trigonometric and inverse trigonometric functions, and for logarithms and exponentials.
- Use the derivative to find tangent lines to curves.
- Calculate derivatives of functions defined implicitly.
- Interpret the derivative as a rate of change.

- Solve problems involving rates of change of variables subject to a functional relationship.

Chapter 4 (4.1-4.8). Applications of the Derivative

- Find critical points, and use them to locate maxima and minima.
- Use critical points and signs of first and second derivatives to sketch graphs of functions.
- Use the first derivative to find intervals where a function is increasing or decreasing.
- Use the second derivative to determine concavity and find inflection points.
- Apply the first and second derivative tests to classify critical points.
- Use Differential Calculus to solve optimization problems.

Chapter 5 (5.1-5.7). The Integral

- Find antiderivatives of functions; apply antiderivatives to solve separable first-order differential equations.
- Use the definition to calculate a definite integral as a limit of approximating sums.
- Apply the Fundamental Theorem of Calculus to evaluate definite integrals and to differentiate functions defined as integrals.
- Calculate elementary integrals with pencil and paper, without calculator or computer algebra software, using:
    - Linearity of the integral
    - Rules for powers (including exponent -1) and exponentials, the six trigonometric functions and the inverse sine, tangent and secant
    - Simple substitution.

Chapter 6 (6.2) Differential Equations

- Use separation of variables to solve a differential equation modeled for growth or decay in applied problems