MTH131J COURSE SYLLABUS

Course Number & Name	MTH131J Mathematical Analysis For Management
Instructor	B. Ülgen Kılıç (Office: Math Building Rm 205)
	bengieru@buffalo.edu
Office Hours	Wednesday 15:00P – 17:00P or by appointment
Teaching Assistant	Lingqi Meng (Office: Math Building Rm 130)
	lingqime@buffalo.edu
Office Hours	Tuesday,Thursday 15:00P – 16:00P
Lecture Times & Location	Tue/Wed/Thu 6:50P – 9:15P in **Nsc 210**
Recitation Times & Location	**J1 :** Tue/Wed/Thu 6:00P – 6:40P in **Nsc 210**
Textbook	Barnett, Ziegler, Byleen, Stocker, Calculus for Business, Economics, Life Sciences, and Social Sciences (14^{th} Edition)
Grading	(25%) **Quizzes** quizzes are given in the last 10 minutes of every recitation except on exam days (25%) **Homework** weekly homeworks are due every Thursday beginning of the lecture except the last week (5%) **Completeness** I am not taking attendance but you can get 5% automatically for free just by fulfilling the course responsibilities (showing up to recitations and taking quizzes, turning in homeworks on time etc..) (20%) **Exam I** given on Thursday June 13 (in lecture) (25%) **Final** given on Wednesday July 3 (in lecture)
Math Help Center & Hours	Math Building Rm 110 Mon–Fri 9:00A – 5:00P

Course Description

The prerequisite for this class is NYS Regents Course B, or ULC 148, or MTH 115. This course will move quickly, so you should expect to attend every lecture. I know it's not fun to take a math class over the summer while you can be outside and enjoy the warm weather, but if you are reading this you are likely to go through this 6 week period for some reason. I am going to try to make the course as painless as possible but you will have to cooperate. I recommend taking notes during class and recitation, exploiting office hours and completing assignments on time. As long as you do your best, you will be fine. Taking good notes will help you identify important concepts and major themes throughout the material. If you have any questions, feel free to contact myself or the Teaching Assistant.

No calculators, notes or electronic devices will be allowed in quizzes or exams (every one of you has already equipped with the most powerful calculator naturally that you carry upon your shoulders). Nevertheless, **telepathy, levitation and any other type of witchcraft/magic/super power are allowed. You can feel free to use them during the exams**. Remember, this course offers you to discover fundamental human knowledge that you will encounter once in this course and probably nowhere else outside of the class. So, try to take advantage of this opportunity as much as possible. Your first homework is due 05/30 and it will include three of your most favorite songs that I will later on use to create a playlist on Spotify and share with you. Please turn in the homeworks in the assigned order with a clean and nice handwriting and don't forget to add details.

Topics Covered

CH1 Functions and their associated graphs. Linear, quadratic functions. Polynomial and rational functions. Trigonometric functions. Exponential and logarithmic functions.

CH2 Limits and the derivative. Introduction to limits, Infinite limits and limits at infinity. Continuity. The Derivative. Basic differentiation properties. Marginal Analysis in Business and Economics.

CH3 More about derivatives. The constant e and continuous compound interest. Derivatives of exponential and logarithmic functions. Derivatives of products and quotients. The chain rule. Implicit differentiation. Elasticity of demand.

CH4 Graphing and optimization. First derivative and graphs. Second derivative and graphs . L'Hospital Rule. Curve sketching. Absolute maxima and minima. Optimization.

CH5 Integration. Antiderivatives and indefinite integrals. Integration by substitution. Differential equations, growth and decay. Definite integral. Fundamental theorem of calculus.

CH6 Applications of integrals. Area between curves. Applications in business and economics. Integration by parts.

CH7 Multivariable calculus. Functions of several variables. Partial derivatives. Maxima and minima. Lagrange multipliers

Course Grading

Quizzes will be given in every recitation (except on exam days) and worth $(25+5)\%$ of your final grade, including completeness. There are total of 15 quizzes in which you will be answering 2-3 questions related to the topics we are covering at the bare minimum. You should have pencil and eraser (or pen with *blue or black* ink) ready to take each quiz and exam.

I will assign the homeworks on every Friday so that you will have time to return them every Thursday except the last week. There are going to be 5 homeworks including the first week and it constitutes 25% of your grade.

The exam will be 2 hours long and held in lecture and the final exam will be held in the last week of classes again during the lecture hours. Since the last day of classes is 4th of July, we will not have class that day. You will be given the final exam the day before. In cases of a legitimate unforeseen conflict (illness or death in the family), the student *must* contact the instructor within two days of the quiz/exam in order to schedule a make-up quiz/exam. In cases of other conflicts, the student *must* obtain permission from the instructor at least a week in advance of the quiz/exam.

I reserve the right to curve the final class grade, if it seems appropriate; a curve will not lower the grade you get from the raw grade scores.

Academic Dishonesty

The minimum penalty for academic dishonesty will be a score of zero on the item in question. In severe cases, or in repeat offenses, penalties may include a failure in the course (without ability to resign) and even possible expulsion. You are allowed and encouraged to discuss problems and work together on the suggested problems.

Students with Disabilities

If you have a diagnosed disability (physical, learning, or psychological) which will make it difficult for you to carry out the course work as outlined, or require help such as recruiting note takers and readers or extended time on exams and/or quizzes, please make this known to me during the first two weeks of the course so we may review possible arrangements for reasonable accommodations.

Miscellaneous Resources

I will generally respond to email only between the hours of 9:00A and 9:00P; **please do not wait until the last minute to contact me**.

Aside from the TA and myself, there are other resources available which I recommend students utilize fully. **The Math Help Center** is where students can ask homework or other related questions to graduate students (Math Building Rm 110). The Math Help Center is open beginning the first week of classes from 9:00A – 5:00P on weekdays. The Mathematics Department also maintains a list of available private tutors (which will typically be graduate students in the department). Computer algebra systems are also fine for learning and practicing the material (but will not be allowed in quizzes/exams). Wolfram Alpha is a great online resource for learning how to do more complicated computations, but requires a little patience learning how to input problems.

You are free to consult any outside materials you would like related to this course, e.g. other textbooks or online videos and tutorials, however, you are responsible for knowing the material covered in lecture.