MATH 105 SECTION 3

Calculus

Fall 2020, Session 2

Dates / Synchronous meeting time:	MoTuWeTh 8:30—9:45	(Zoom: 942 0088 4427)
Recitation:	TuTh 19:00—20:00	
Academic credit:	4	
Hybrid course format:	video, lecture, recitation	

Instructor's information

Dr. Lin Jiu — Lecturer of Mathematics, Duke Kunshan University; Assistant Professor of the Practice, Duke University
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Office Hours: Tuesdays 10:30—11:30 Zoom + Office (925 5360 5755)
19:00—20:00 Zoom Only (992 0163 1606)
or by appointment

Teaching Assistant

Junrong Lin — Quiz, Recitation (Thursday) (918 9120 1445)
Email: junrong.lin@duke.edu
Office Hours: Fridays 19:00---20:00 Zoom Only (982 4360 8131)

Zaizhou Chen — Homework
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Office Hours: Fridays 8:00---9:00 Zoom Only (982 5405 0712)

Course Outline

We will cover most of the following materials from the textbook (Tentatively, may up to some perturbation).

Week 1 **(Oct. 26--29)**	● Limit of a Function **(2.2)** ● Calculating Limits **(2.3)** ● Continuity **(2.5)** ● Limit at Infinity **(2.6)** ● Tangent and Velocity **(2.1)** ● Derivatives **(2.8)**
Week 2	● Differentiation Rules **(3.1—3.6)**

(Nov. 2--5)	• L'Hosptial Rule **(4.4)** • Linear Approximation and Differentials **(3.10)** • Newton's Method* **(4.8*)** • Maximum and Minimum Values **(4.1)** • Mean Value Theorem* **(4.2*)**
Week 3 **(Nov. 9--12)**	• Curve Sketching (**4.3, 4.5***) • Related Rates **(3.9)** • Optimization Problems **(4.7)** • Antiderivatives & Indefinite Integrals **(4.9 Part of 5.4)**
Week 4 **(Nov. 16--19)**	• Definite Integrals **(5.1, 5.2)** • Fundamental Theorem of Calculus (**5.3 , Part of 5.4)** • Substitution Rule **(5.5)** **Midterm, Nov. 19th (Coverage: Up to Fundamental Theorem of Calculus)**
Week 5 **(Nov. 23--26)**	• Integration by Parts **(7.1)** • Trignometric Substitution and Integration **(7.2, 7.3)** • Partial Fraction Decomposition and Techniques of Integration **(7.4, 7.5)** • Imporper Integrals **(7.8)** • Introduction on Differential Equations **(9.1, 9.2*)**
Week 6 **(Nov. 30— Dec. 3)**	• Separable Equations & Exponential Growth and Decay **(9.3, 3.8)** • Linear Equations **(9.5)** • Population Growth* & Predator-Prey Systems* **(9.4*, 9.6*)** • Work and Probability **(6.4, 8.5)** • Area Between Curves, Arc Length, Area of Surface of Revolution **(6.1, 8.1, 8.2)**
Week 7 **(Dec. 7—10)**	• Volume **(6.2—6.3)** • Parametric Equations and Polar Coordinates **(10.1—10.4)** • Review

Sections with * will not appear in the regular problems of exams, but bonus problem(s) may be from those sections.

Final Exam

Dec. 14th, 7--10 & 15:30--18:30

References for this Course

Calculus: Early Transcendentals 8th Edition, James Stewart.

Single Variable Calculus: Early Transcendentals, James Stewart.

Calculus, Volume I, by OpenSTAX. https://openstax.org/details/books/calculus-volume-1

Wikipedia: https://www.wikipedia.org/

Grading Policy

- Midterm: Thu Nov. 19, 8:40—9:40 & 19:00—20:00 (in class) (25.25%)
- Final: TBA (40.75%)
- Homework: Weekly, visit Sakai (24%)
- Quiz: Weekly, in recitation (Thursday) (10%)

A+= 98% - 100% **A** = 93% - 97.99%; **A-** = 90% - 92.99%; **B+** = 87% - 89.99%; **B** = 83% - 86.99%; **B-** = 80% - 82.99%; **C+** = 77% - 79.99%; **C** = 73% - 76.99%; **C-** = 70% - 72.99%; **D+** = 67% - 69.99%; **D** = 63% - 66.99%; **D-** = 60% - 62.99% **F** = 59.99% and below

As you can see, the final percentage will be rounded DOWN to the closest integer.

Remarks:

In case of documented illness or family emergency or documented University sponsored trips, you may miss the midterm, but the supporting documentation must be submitted to the instructor in advance. With the document, your missing midterm score can be counted as the same as your final. Do remember: let me know **BEFORE** the exam. An unexcused absence from any exam will be counted as a zero.

Homework

Weekly homework will be assigned each Thursday and will be due on the following Thursday's lecture, except for the last week, which is due the Monday after (i.e., Dec., 14). Please upload your homework to Sakai, by combining all the photos to a PDF file. **No late homework will be accepted**. The lowest scores of your homework can be dropped at the end of the semester. Each homework will be counted 4%.

Quiz

Weekly quiz will be assigned each Thursday during recitation session, except for the week of Midterm test. The lowest scores of your quizzes can be dropped at the end of the semester. Each quiz will be counted 2%.

Midterm and Final Exam

For the midterm, you are allowed to bring ONE A4 size formula sheet (double sided); while for the final exam, THREE pieces are allowed. When turning in your answer sheets, formula sheet(s) should also be included and each piece will be given 0.25%.

Academic Integrity:
This is very important!
Any misconduct behavior on homework, including but not limited to copying another student's homework paper, copying a solution found in another book or notes or website will, at minimum, result in a zero on that assignment and may result in a failing grade for the course. The incident will be reported to the Dean of Students.
The penalty on misconduct behavior on exam will be much more severe.

Academic Policy & Procedures:
You are responsible for knowing and adhering to academic policy and procedures as published in University Bulletin and Student Handbook. Please note, an incident of behavioral infraction or academic dishonesty (cheating on a test, plagiarizing, etc.) will result in immediate action from me, in consultation with university administration (e.g., Dean of Undergraduate Studies, Student Conduct, Academic Advising). Please visit the Undergraduate Studies website for additional guidance related to academic policy and procedures. Academic integrity is everyone's responsibility.

Academic Disruptive Behavior and Community Standard:
Please avoid all forms of disruptive behavior, including but not limited to: verbal or physical threats, repeated obscenities, unreasonable interference with class discussion, making/receiving personal phone calls, text messages or pages during class, excessive tardiness, leaving and entering class frequently without notice of illness or other extenuating circumstances, and persisting in disruptive personal conversations with other class members. Please turn off phones, pagers, etc. during class unless instructed otherwiseIf you choose not to adhere to these standards, I will take action in consultation with university administration (e.g., Dean of Undergraduate Studies, Student Conduct, Academic Advising).

Academic Accommodations:
If you need to request accommodation for a disability, you need a signed accommodation plan from Campus Health Services, and you need to provide a copy of that plan to me. Visit the Office of Student Affairs website for additional information and instruction related to accommodations.