Syllabus

Course No.	1900736W	College		CFL	Dept.	Math
Teacher	Tong Wang					
Time	2022.12.19—2023.01.06					
Course Name	**English**	Elementary Differential Equations				
	Chinese	初等微分方程				
Course credit hours	**Total**	**Theory**		**Office Hour or Practice**	**Credits**	
	70	60		10	12.0	

Course description：

Introduction to ordinary differential equations and their applications,
linear differential equations, systems of first order linear equations, numerical methods.

Requirements for courses:

Calculus II and III

Course structure explanation:

Make clear the necessary parts, optional parts, distribution of hours. Courses with experiments or practice are expected to explain credit hours needed, content, scheme and functions.

Tentative Schedule:

Week	Section	Topic
1	1.1	Modeling via Differential Equations
	1.2	Separation of Variables
	1.3	Slope Fields
	1.4	Euler's Method
	1.5	Existence and Uniqueness of Solutions
2	1.6	Equilibria and the Phase Line
	1.7	Bifurcations
	1.8	Linear Equations
	1.9	Integrating Factors
	2.1	Modeling via Systems
	Exam 1	
3	2.2	The Geometry of Systems
	2.4	Additional Analytic Methods for Special Systems
	3.1	Properties of Linear Systems and the Linearity Principle
	3.2	Straight-Line Solutions
	3.3	Phase Portraits for Linear Systems with Real Eigen values
		Complex Eigen values
4	3.5	Repeated and Zero Eigen values
	3.6	Second-Order Linear Equations
	4.1	Forced Harmonic Oscillators
	4.2	Sinusoidal Forcing
	4.3	Undamped Forcing and Resonance
	Exam 2	
5	6.1	Laplace Transforms
	6.2	Discontinuous Functions
	6.3	Second Order Equations
	6.4	Delta Functions and Impulse Forcing
		Final Exam (Day and Time TBA)

Teaching methods (Lectures, practice, etc)

The course will be developed with such methods as lectures, discussion, research and presentation and writing assignments

Forms of evaluation and requirements
Structure of the final grade(including presence, class performance,), focus of exam, forms of exam(test, interview, final report, etc)

Grade Scale

Grades:

Quizzes	Every Thursday	25%
Exam 1	Second Friday	25%
Exam 2	Forth Friday	25%
Final Exam	TBA	30%

Students are expected to maintain high standards of academic honesty. Specifically, unless otherwise directed by the professor, students may not consult other students, books, notes, electronic devices or any other source, on examinations. Failure to abide by this may result in a zero on the examination, or even failure in the course.

	Name		Author	Year	Price
Textbook	Differential Equations 4th ed.		Paul Blanchard, Robert L. Devaney, and Glen R. Hall.		