International Credit Program at Elmira College
Summer 2025 Course Listing as of 07/31/2025

Course Code	Course Title	Credits	Course Description
ACCT 1060	Principles of Financial Accounting	3	This course introduces fundamental principles and concepts of financial accounting, providing students with a comprehensive understanding of the financial reporting process. Topics covered include the accounting cycle, preparation of financial statements, and analysis of financial information. Students will develop the skills necessary to analyze, interpret, and communicate financial information to support decision-making.
ACCT 2034	Financial Accounting Analysis Conspectus	3	This course introduces the basic understanding of accounting requirements, concepts and principles of financial accounting. Students will learn how to prepare financial reports, evaluate managing financial information records, interpret financial information for economic decisions, accrual accounting principles, financial statement preparation and analysis, assets and liabilities measurement. Students will gain the knowledge and skills necessary to prepare, present, and analyze financial information. In analyzing case studies and practices, students fully appreciate the pervasive impact of accounting as both a technical and a social practice in the real world.
ACCT 2050	Introduction to Managerial Accounting	3	Managerial accounting is a foundational course designed to provide students with an understanding of the principles and techniques used in managerial decision-making and performance evaluation. The course focuses on the use of accounting information for planning, controlling, and decision-making within organizations. Topics covered include cost behavior, cost-volume-profit analysis, budgeting, variance analysis, performance measurement, and relevant costing.
ARTH 1050	Histories of World Art I	3	This course offers a comprehensive survey of artistic movements, architectural styles, and cultural ideas from the Paleolithic era to the Early Renaissance. Through a global lens, students will explore the evolution of art and its significance in shaping societies and civilizations. The course emphasizes critical analysis, contextual understanding, and appreciation of diverse artistic expressions across different regions and periods.
ARTH 1060	The History of Art II	3	Managerial accounting is a foundational course designed to provide students with an understanding of the principles and techniques used in managerial decision-making and performance evaluation. The course focuses on the use of accounting information for planning, controlling, and decision-making within organizations. Topics covered include cost behavior, cost-volume-profit analysis, budgeting, variance analysis, performance measurement, and relevant costing.
ARTH 1160	History of Jazz	3	This course provides a general survey of the history of jazz from its beginnings to the present. Students will explore the historical, theoretical, and critical dimensions of jazz, coupled with hands-on experience in the creative process. The curriculum emphasizes a study of the stylistic and historical components of jazz, including an analysis of influential jazz composers and performers. The course places these elements within the broader context of cultural and artistic movements in the world.
ARTH 1230	Objects and Identity	3	This course explores how material culture shapes our understanding of identity and history. Through careful examination of objects, students will learn to analyze their visual characteristics, origins, uses, and the contexts in which they exist. From prehistoric tools to modern technology, we will investigate how objects connect past and present, fostering a critical discourse on the value and interpretation of art and design across cultures and time periods.
ARTH 2235	African American Voices in Literature	3	This course serves as an introduction to the rich and diverse tradition of African American literature. Through the exploration of various genres, including poetry, fiction, drama, and nonfiction, students will examine the historical, cultural, and social contexts in which African American literary works were produced. The course aims to foster a critical understanding and appreciation of African American literary voices, themes, and contributions to American literature.
ARTH 2260	Introduction to Modern Art	3	This course offers an in-depth exploration of the evolution and transformation of artistic expression in the modern era, spanning roughly from the late 19th century to the mid-20th century. Students will engage with various art movements, key artists, and critical concepts that shaped the trajectory of modern art. The curriculum integrates historical context, theoretical frameworks, and critical analysis to foster a deep understanding of the diverse and revolutionary developments in the art world during this period.
ARTH 2396	Critical Theory in the Visual Arts	3	This course critically examines the role of images in shaping ideology, identity, power structures, and cultural narratives. Moving beyond traditional art history, it explores how images function in media, consumer culture, science, and global networks. Students will engage with key theoretical frameworks—including semiotics, psychoanalysis, postmodernism, and media studies—to develop analytical tools for interpreting visual culture. Through case studies, discussions, and independent research, students will critically assess how visual media influence public perception, cultural identity, and political discourse.
ARTH 2715	Visual Culture in Fashion	3	This course explores the role of visual culture in the world of fashion, examining how fashion communicates identity, status, and cultural values through various media forms. Students will study a wide range of artistic expressions, including painting, sculpture, metalwork, architecture, installations, exhibitions, advertising, photography, film, and performance. By analyzing visual theories, semiotics, color theory, and aesthetics, students will gain insights into the intricate language of fashion as a cultural phenomenon. The course emphasizes how diverse media from traditional illustration and photography to modern digital platforms, shape and enhance the perception of fashion, ideas, and art.

ARTH 3105	Fundamentals of Theatrical Design	3	This course introduces students to the essential principles and practices of theatrical design, focusing on how visual and auditory elements contribute to storytelling in live performance. Students will explore the core areas of scenic, costume, lighting, and sound design, developing an understanding of the design process from concept to execution. Through lectures, case studies, and creative projects, the course emphasizes collaboration, script analysis, research, visual communication, and the integration of design elements to support dramatic action and emotional impact. No prior experience in theatre is required.
ARTH 3360	Digital Printing	4	Students will learn the fundamental drafting techniques used in theater production, exploring both theoretical and practical aspects of scenic, lighting, and costume design. The course covers essential hand-drafting skills alongside digital drafting using CAD software. Through hands-on exercises, students will develop proficiency in creating technical drawings, construction plans, and 3D visualizations for theatrical productions. By the end of the course, they will have a strong foundation in drafting principles applicable to stage design and production.
ARTH 3440	Operations Management In Printing Industry	3	This course is designed to provide students with an in-depth understanding of operations and process management within the printing industry. It encompasses a broad array of subjects essential for overseeing the production and workflow in printing establishments. Students will explore the detailed workings of printing operations of the industry, starting from the preliminary job preparation phase through to the ultimate distribution of printed goods. The syllabus highlights the significance of achieving efficiency and accuracy at each stage of the process, ensuring that students are fully prepared to address the distinctive challenges inherent in the printing industry.
ARTH 3625	Graphic Communication in Management of Projects	4	This course explores the role of graphic communication in managing projects across various industries. It examines the principles and practices involved in designing, producing, and transmitting graphical information in project contexts. Students will learn essential design concepts, including visualizations, icons, color theory, proportion systems, grids, and branding, while applying these concepts to practical scenarios. The course also delves into publication design, typography, prepress production, and the technical processes behind industrial-scale graphic production. By mastering planning tools and techniques, students will develop skills to manage diverse projects in printing, cross-media platforms, and other creative industries.
ARTH 3701	Music History	3	This course explores the rich tapestry of European music from the Middle Ages to the present. Delve into the evolution of musical styles, key composers, and the cultural contexts that shaped the sounds of these era. This course offers a fascinating journey through the evolution of musical styles, composers, and cultural influences that have shaped Western music over several centuries.
BCHM 2356	Introduction to Biochemistry	4	This course offers a comprehensive introduction to the fundamental knowledge of biochemistry and molecular biology, the study of the chemical processes taking place within living organisms. In the course, students will study the chemistry and biological properties of proteins, carbohydrates, lipids, and nucleic acids, amino acids, vitamins and learn chemical events in living systems, including metabolism and structure-function relationships of biologically important molecules. Upon completion of this course, students will have a deepened comprehension of the chemical mechanisms that underlie life processes and establish a strong foundation for future studies in the field of biochemistry.
BIOL 1244	Exploration to General Biology I	4	This course provides an introduction to the fundamental principles of biology, emphasizing the structure and function of living organisms, cellular processes, genetics, and evolution. Topics include the chemical and molecular basis of life, cell structure and function, metabolism, heredity, and the mechanisms of evolution. The course integrates scientific inquiry, experimental design, and data analysis to develop a foundational understanding of biological systems. This course is designed for students pursuing life sciences and related fields, preparing them for advanced biological studies.
BIOL 2010	Introduction to Genetics	4	This course provides an introduction to the fundamental principles of genetics, exploring both classical and molecular genetics. Topics covered include Mendelian genetics, chromosome mapping, the genetic code, DNA repair and mutations, the genetics of cancer, DNA technology, and epigenetics. The course will include both lecture and laboratory components, allowing students to apply theoretical knowledge through hands-on experiments and data analysis.
BIOL 2090	Ecology	4	This course explores core principles of ecology, covering ecological processes, population and community dynamics, energy and nutrient relations, and ecosystem functions. Students examine ecological goods and services, nutrient cycling, and conservation practices, gaining insight into the complex relationships within ecosystems and the importance of maintaining ecosystem health through effective management strategies.
BIOL 2753	Exploration to General Microbiology	4	General Microbiology provides a comprehensive exploration of the principles and diversity of microorganisms. The course covers fundamental aspects of microbial biology, including their characteristics, classification, physiology, genetics,clinical microbiology, and an introduction to differentiation. Students will gain a profound understanding of the roles microorganisms play in various environments, industries, and their significance in biological sciences.
BIOL 3250	Developmental Biology and Physiology	4	This course comprehensively explores the principles of development and comparative physiology. It enables students to deeply study the intricate processes of organism growth, development, and the physiological mechanisms maintaining life, fostering a holistic understanding.

BIOL 3321	Cancer Biology	3	Cancer is a diverse set of diseases driven by genetic and environmental factors, affecting nearly every tissue in the body. This course explores the molecular and cellular basis of cancer, including oncogenes, tumor suppressor genes, signaling pathways, and tumor progression. We will examine experimental models, diagnostic methods, and treatment strategies such as chemotherapy, targeted therapies, and immunotherapies. Clinical aspects, including pathology and ethics in cancer research, will also be discussed.
BUSI 1004	Calculus for Business	3	Calculus for Business is a course designed to provide students with a solid foundation in calculus concepts and their applications in business and economics. The course explores various types of relations and functions, including linear, polynomial, logarithmic, and exponential functions. Additionally, students will delve into the principles of differential calculus for functions of one and two variables, as well as integration techniques, including indefinite and definite integrals. Emphasis will be placed on applying calculus concepts to solve real-world business and economic problems.
BUSI 2621	Business and Commerical Law	3	Designed to help students gain an advanced understanding of legal principles governing corporations and corporate finance, and the regulatory environment that shapes corporate activities and financial markets.
BUSI 3030	Business Communication	3	This course provides an in-depth exploration of business communication principles, focusing on the creation of effective business documents and oral presentations. Students will develop skills in clear and concise communication tailored to professional audiences. The course includes the study and application of team communication, effective listening, intercultural communication, and the use of technology to facilitate the communication process. Emphasis is placed on collaborative projects, using digital tools, and presenting information in various business formats to meet organizational goals.
BUSI 3200	International Business Law	3	International Business Law provides an overview of the legal framework governing business transactions across borders. The course covers various legal principles, regulations, and challenges encountered in the international business environment. Students will examine the unique challenges and legal complexities inherent in international business transactions, with an emphasis on identifying and mitigating risks. Through case studies and practical exercises, students will gain an understanding of strategies for minimizing legal pitfalls and ensuring compliance in international business dealings.
CHEM 1721	General Chemistry I	4	General Chemistry I is an introductory course that provides students with a foundational understanding of the principles and theories of chemistry. Topics covered include atomic structure, chemical bonding, stoichiometry, kinetic molecular description of the states of matter. Emphasis will be placed on developing problem-solving skills and critical thinking in the context of chemical phenomena. Laboratory experiments and demonstrations will complement theoretical concepts to enhance understanding.
CHEM 1722	General Chemistry II	4	General Chemistry II is a continuation of General Chemistry I, focusing on advanced topics in chemistry including chemical equilibrium, thermodynamics, kinetics, electrochemistry, and descriptive inorganic chemistry. The course aims to deepen students' understanding of chemical principles and their applications in various fields of science and technology. Laboratory experiments and problem-solving exercises will reinforce theoretical concepts
CHEM 1725	General Chemistry Laboratory I	1	General Chemistry Laboratory I is a foundational laboratory course designed to accompany the concepts taught in General Chemistry I. This course introduces students to essential experimental techniques in chemistry, including proper laboratory procedures, data collection and analysis, and scientific reporting. Students will gain hands-on experience with chemical reactions, stoichiometry, solution preparation, titration, calorimetry, and gas laws. The course fosters scientific inquiry through observation, hypothesis testing, and the interpretation of experimental results.
CHEM 2055	Introductory Inorganic Chemistry	4	This course introduces the fundamental principles, theories, and applications of inorganic chemistry. Topics covered include the periodic table, chemical bonding, coordination chemistry, main group and transition metal chemistry, solid-state chemistry, and the behavior of inorganic compounds. The course emphasizes the foundational knowledge necessary for understanding the properties and reactivity of inorganic substances. (Laboratory)
CHEM 2310	Organic Chemistry I	4	Organic Chemistry I serves as an introduction to the foundational principles of organic chemistry. The course focuses on the structures, properties, and chemical reactivity of carbon atoms in different hybridization states, particularly in alkanes (including cycloalkanes), alkenes, and alkynes. Additionally, various aspects of isomerism in organic compounds and reaction mechanisms (substitution, elimination, and addition) will be covered with an emphasis on electron flow.
CHEM 2320	Organic Chemistry II	4	Organic Chemistry II is the continuation of Organic Chemistry I, focusing on advanced topics in organic chemistry. The course delves into the structure and reactivity of organometallic compounds, radicals, aldehydes, ketones, carboxylic acids and their derivatives, enolates, aromatic systems, amines, heterocyclic compounds, and modern methods and techniques in organic structure elucidation.
CHIN 2100	Intermediate Chinese I	3	Intermediate Chinese I is designed for students who have completed beginner-level Mandarin and are ready to further develop their proficiency in listening, speaking, reading, and writing. Emphasis is placed on consolidating foundational grammar, expanding vocabulary, and enhancing communicative competence in everyday and culturally relevant contexts. Students will engage with more complex sentence structures and learn to read short texts and express themselves with greater confidence and fluency in both spoken and written Chinese.
COMM 1080	Introduction to Public Speaking	3	Theory, practice, analysis, and ethics of public speaking. Audience analysis, message organization, rhetorical strategies, and delivery techniques to engage and persuade listeners.

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COMM 1100	Introduction to Media Studies	3	This course offers a comprehensive introduction to media's role, function, and impact in contemporary society. Students explore print, broadcast, digital, and social media, analyzing their influence on culture, politics, economics, and daily life. Through theoretical frameworks, case studies, and hands-on projects, the course fosters critical thinking and media literacy, equipping students to navigate and understand the complexities of the modern media landscape.
COMM 2200	Theory of Communication	3	This course is designed to explore the fundamental principles and theoretical frameworks of communication across various contexts. It aims to equip students with the knowledge and skills necessary to navigate diverse communication situations in both personal and professional settings. Students will examine key communication models, the role of verbal and nonverbal communication, the dynamics of interpersonal and group interactions, and the influence of media, culture, and technology on communication processes. Special emphasis will be placed on how communication theories apply to organizational settings, public discourse, and cross-cultural interactions. Through critical analysis and practical applications, students will develop a deeper understanding of how communication shapes human interactions and societal structures, enabling them to analyze and enhance their communication styles for more effective collaboration in different social and work environments.
COMM 2350	Introduction to Human Communication	3	This course provide an introduction to communication studies. Course topics include communication, interpersonal communication, mass communication, digital communications, communication in groups and organizations, international communication, communication culture and communication problems in the past and present era. In this course, students will acquire competencies in verbal and nonverbal communication, 21st century skills, as well as digital literacy, equipping them for effective communications across diverse settings.
COMM 3200	Media Law and Ethics	3	This course explores the intersection of law and ethics within the field of media. Students will examine the rights and responsibilities of media professionals in democratic societies, focusing on the legal frameworks governing freedom of expression, defamation, privacy, intellectual property, and regulation of social media content. The course emphasizes the ethical dilemmas faced by journalists and content creators, including issues such as truth-telling, bias, and the societal impact of media practices. Students will develop the skills to critically analyze legal and ethical challenges in a rapidly evolving media landscape.
COMM 3203	Women and Media	3	This course delves into the intricate relationship between women and media, exploring portrayal, representation, and participation across platforms. Students analyze media's construction, perpetuation, and challenging of gender norms, stereotypes, and power dynamics. Using theoretical frameworks, case studies, and contemporary examples, intersections of gender, race, class, sexuality, and identity in media representations are examined. The course emphasizes women's roles in media production, consumption, and activism, promoting discussions on media literacy, diversity, and social change.
COMM 3266	Public Relations	3	Advanced public relations course covers strategic principles, crisis communication, media relations, and ethics. Emphasis on critical thinking and practical exercises prepares students for real-world challenges, refining skills in media relations, image management, and ethical decision-making. Graduates excel as skilled practitioners in diverse corporate settings.
COMM 4650	Advertising and Society	3	Advertising and Society examines the multifaceted relationship between advertising and the broader cultural, political, and ethical landscape. Students will explore advertising's influence through legal, social, constitutional, and ethical lenses, interrogating its role in shaping public discourse, identity, and institutional frameworks. Students will enhance their ability to critically assess advertisements, understand the systems in which they operate, and articulate informed perspectives on contemporary issues in media and society.
COMM 4700	Corporate Communications	4	This course explores the strategic role of corporate communications in modern organizations. Students will examine how companies manage their reputation, engage stakeholders, and navigate communication challenges in a changing business environment. Topics include brand management, media relations, internal and investor communications, crisis management, and corporate social responsibility.
COMP 1005	History of Computing	3	Tracing the evolution of computing from ancient calculation tools to the digital age, this course explores the key technological, scientific, and social developments that shaped modern computing. Emphasis is placed on pivotal innovations, significant individuals and institutions, and the societal transformations driven by computing technologies. Students will investigate how computation has evolved across disciplines, industries, and cultures, and how these developments have impacted education, communication, labor, politics, and global connectivity
COMP 1100	Introduction to Computer Systems	3	This course primarily introduces some essential concepts of computer systems consisting of hardware and software components that work together to run programs. It covers hardware(buses, I/O devices, main memory, and processors) and systems software(operating system and application programs). Additionally, it offers comprehensive information about computer programming, including program structure and execution. Students are encouraged to apply all their knowledge in designing and running basic programs on a system.
COMP 1111	Programming for Data Science	3	Embark on a comprehensive journey into the realm of programming and data science with this introductory course. Delve into Python, a powerful language ideal for beginners, as you explore core concepts like data types, control flows, and functions. Extend your skills into data analysis, utilizing packages such as Pandas and Matplotlib to visualize and interpret data effectively. By the end, you'll possess a solid foundation to approach and solve real-world problems using computational methods.

COMP 1305	Computer Programming in Python	3	Computer programming in Python and Problem solving techniques using computer programs; fundamental concepts in computer programming and data science include: data types, functions, modules, classes, and methods; testing and debugging of a program.
COMP 1400	Introduction to MATLAB Programming	3	This course provides an introduction to MATLAB programming and explores its applications in machine learning. Students will learn fundamental programming concepts, data structures, and techniques for solving engineering and scientific problems using MATLAB. Additionally, the course will introduce basic concepts of machine learning and demonstrate how MATLAB can be used for machine learning. At the end of the course, students should be able to use MATLAB in their own work, and be prepared to deepen their MATLAB programming skills and tackle other languages for computing.
COMP 1500	Discrete Mathematics for Computer Science	3	This course introduces fundamental concepts in discrete mathematics with a focus on applicationsin computer science. It provides a theoretical foundation for various aspects of computer science, including algorithms, data structures, and formal methods. Topics covered include logic, set theory, relations, functions, combinatorics, graph theory, and mathematical induction. Emphasis is placed on developing problem-solving skills and applying mathematical reasoning to solve real-world problems in computer science.
COMP 2036	Object Oriented Programming	3	This course serves as an introduction to the principles and practices of object-oriented programming (OOP) using Programming language. Students will explore the foundational concepts of OOP such as classes, objects, encapsulation, inheritance, and polymorphism. The course emphasizes problem-solving through software design and implementation, and introduces real-world applications of OOP including modularity, reusability, and abstraction. Learners will develop both conceptual understanding and practical coding skills, enabling them to build efficient, maintainable, and scalable applications.
COMP 2071	Data Science and Big Data	3	Data engineering has become an essential discipline in today's data-driven world, with an increasing demand for professionals who can build and maintain scalable systems to manage vast amounts of data. This course provides a comprehensive overview of data engineering practices, focusing on the entire data engineering lifecycle. Through a hands-on approach, students will learn how to evaluate and apply the most effective technologies and frameworks to meet the needs of organizations and their data consumers.
COMP 2112	Data Structures and Algorithms	3	In this course, students engage with advanced programming by exploring the synergy between data structures and programming language features. The course emphasizes the design of large-scale software systems, focusing on object-oriented programming, data abstraction, polymorphism, and higher-order functions. Through a blend of theory and practical applications, students gain proficiency in crafting flexible, efficient, and scalable code structures. The course empowers participants to navigate complex programming challenges and contribute effectively to the development of sophisticated software systems.
COMP 2550	Computational Algebra	3	This course systematically introduces computer algebra algorithms and techniques. It emphasizes the algebra applications in computer science especially in cryptography. The topics include computer algebra, residue arithmetic, polynomial arithmetic, polynomial equations, and applications in cryptography. It requires students to apply their accumulated algebraic knowledge in computer science.
COMP 3120	Operating Systems	3	This course offers a comprehensive overview of operating systems. It delves into key concepts like process and memory management, synchronization, and file systems. Students will study both theory and practical implementations, and explore security and distributed systems. By the end, they'll understand OS functions and resource management.
COMP 3125	Software Engineering	3	This course explores object-oriented and traditional software engineering methodologies, covering the full software development lifecycle: requirements, design, implementation, testing, and maintenance. It emphasizes UML for modeling systems and key topics like requirements engineering, design patterns, architecture, and quality assurance. Project management skills, including planning and risk assessment, are also taught. Through lectures, hands-on projects, and case studies, students gain practical skills for real-world software development in diverse environments.
COMP 3130	Database System	3	This course provides an in-depth study of database systems, focusing on the relational model and its practical implementation. Students will learn fundamental concepts of database design, relational algebra, SQL (Structured Query Language), file structures, storage, query processing, transaction management, concurrency control, and recovery systems. Through hands-on exercises and projects, students will gain practical experience in designing, implementing, and managing databases.
COMP 3135	Algorithm Design and Analysis I	3	Aims to offer students a deep - seated understanding of algorithms as exact mathematical constructs. During the course, students will explore the basic principles of algorithm design. They'll learn how to craft efficient and accurate algorithms, taking memory needs into account. Key topics include the analysis of algorithms, algorithm design techniques, and computational complexity, equipping students with essential skills for algorithmic problem - solving.
COMP 3350	Computer Systems Integration	3	This course provides an in-depth exploration of the fundamental components that constitute computer systems, starting from the foundational level of digital logic and hardware gates and extending to the complexities of compilers, programming languages, and software applications. The primary objective of this course is to offer students a comprehensive understanding of the hierarchical structure of computer systems and to demonstrate how the implementation of straightforward interfaces can facilitate the creation of sophisticated and robust computing solutions.

COMP 3370	Digital Communications	3	An introduction to the fundamental principles of digital communications. It covers essential topics such as signals and systems, Fourier transforms, power spectral density, and digital modulation techniques. Students will explore signal sampling and digitization, baseband and carrier modulation schemes, and techniques for detecting signals in the presence of noise. The course also delves into transmitter and receiver architectures, and signal-to-noise ratio (SNR). By the end of the course, students will gain a strong theoretical and practical foundation in digital communication systems.
COMP 3691	Artificial Intelligence	4	Starting from many practical situations, this course will provide students with the basic concepts and techniques to help students understand artificial intelligence. The course will also cover ethical considerations and real-world applications of artificial intelligence. Students will learn the fundamentals of artificial intelligence, including problem solving, machine learning and natural language processing, AI programming and development. The goal is to provide students with practical hands-on skills to solve AI problems through programming assignments.
COMP 4100	Programming Language Fundamentals	3	This course offers an overview of general features of programming languages and explanation of basic methods of language implementation. Design and programming of particular parts of compilers are supported by elements of the theory of grammars and automata. Students will learn programming language syntax, parsing, semantics, and type systems, and apply these concepts using languages like Scheme, ML, or Haskell. The course covers control flow, data abstraction, polymorphism, concurrency, and optimization techniques to prepare students for building efficient, maintainable software. By the end of the course, students will be able to design and implement advanced programs while understanding the underlying principles that guide programming language design and execution.
ECON 1060	Introduction to Microeconomics	3	This course offers students a fundamental understanding of microeconomic principles. It covers supply - demand, consumer behavior, production, and more. Through lectures, readings, discussions, and exercises, students gain analytical tools to grasp microeconomic concepts and real - world economic issues.
ECON 1080	Introduction to Macroeconomics	3	This course comprehensively imparts principles, concepts, and analytical tools of the broader economic system. Covering aggregate demand, national income, and business cycles, it combines theory, real - world cases, and critical thinking to introduce key macroeconomic factors influencing national and global economies.
ECON 2043	Macroeconomic Theory II	3	This course is an advanced course that builds upon the foundational concepts introduced in Macroeconomic Theory I, delving deeper into the analysis of macroeconomic phenomena, exploring the dynamics of aggregate economic variables. Topics include national income, employment, the rate of interest, the price level and more. The course is designed for students with a solid understanding of basic macroeconomic principles who wish to gain a more comprehensive and nuanced understanding of macroeconomic theory and its applications.
ECON 2044	Microeconomic Theory I	3	A concentration on microeconomic theory. Modules contain theory of consumer choice; elements of production and cost. Price and output determination in competitive markets will be discussed in the topics. This course serves as a crucial foundation for further studies in economics and related fields. Students will gain insights into the microeconomic forces that shape the behavior of consumers, firms, and markets.
ECON 2048	Money and Banking	3	The course is designed to provide students with an overview of the field of money and banking and its significance in the economy. It explores the intricate relationship between money, financial markets, and the macroeconomy. Main topics include money, interest rates, the stock market, banking industry, financial markets, financial Regulation and monetary policy in the economy, etc. At the end of the course, students will understand better the role of money and the financial market in our economy.
ECON 2300	Introductory International Economics	3	This course provides an in-depth exploration of the principles, theories, and applications of international economics. It examines the causes and consequences of economic interactions among countries, focusing on both international trade and international finance. Students will analyze trade theories, trade policies, exchange rates, balance of payments, and the impact of globalization.
ECON 2317	Organizational Economics	3	This course examines how economic principles shape organizational design, strategy, and performance. Students will explore key concepts such as incentives, property rights, transaction costs, and internal labor markets to understand how organizations allocate authority, structure contracts, and motivate individuals. Combining theory with empirical studies—including insider econometrics and experimental work—the course also addresses topics like leadership, corporate governance, innovation, and hybrid organizational forms. Emphasis is placed on applying these ideas to real-world challenges across business and public institutions.
ECON 3040	Intermediate Macroeconomics I	3	Intermediate Macroeconomics I delves into the core concepts and models essential for understanding the functioning of modern economies. The course covers the short-run, medium-run, and long-run behavior of aggregate economies, focusing on output, unemployment, inflation, and growth. It introduces students to analytical tools and macroeconomic frameworks to evaluate economic performance, policy decisions, and global economic interconnections. Real-world applications are emphasized to foster a comprehensive understanding of macroeconomic theories and their implications.
ECON 3041	Intermediate Macroeconomics II	3	Intermediate Macroeconomics II deepens the analysis of national income determination, business cycle dynamics, and the roles of monetary and fiscal policies. The course emphasizes both closed and open economy frameworks and explores key issues such as capital accumulation, government debt, exchange rate regimes, and policy trade-offs. Through model-based reasoning, students will examine long-term economic growth and short-run fluctuations, with attention to real-world data and policy debates. The course integrates theoretical frameworks with historical and contemporary policy discussions relevant to global macroeconomic stability.

ECON 3051	Econometrics	3	This course introduces students to the fundamental concepts and techniques of econometrics, focusing on economic applications of statistical methods. Students will learn how to use simple and multiple regression analysis to analyze economic relationships, test hypotheses, and make economic predictions. By the end of the course, students will be able to critically evaluate economic models and apply econometric techniques to real-world economic problems.
ECON 3120	Industrial Organization	3	This course provides an introductory exploration of strategic behaviors exhibited by firms operating within imperfectly competitive markets. Topics covered encompass various aspects such as market concentration, mergers, entry deterrence, product differentiation, advertising, and regulation. Additionally, the course delves into the theory of industrial organization, emphasizing the analysis of strategic interactions among market participants in scenarios with limited competition. Drawing upon principles from Microeconomics and Game Theory, students will examine the behavior of profit-maximizing firms, exploring market structures and competitive strategies. The curriculum includes a comprehensive review of firm theory, analysis of monopolistic conduct, and game theoretic methods to study oligopolistic behavior across different competitive environments. Real-world applications are integrated throughout the course, providing insights into industry performance and regulatory considerations.
ECON 3340	Behavioral Psychology and Economics	3	Combining insights from psychology on human behavior, this course is intended to allow students to become familiar with the behavioral approach to economics and to political decision making. Students will gain in-depth understanding of the major aspects of economic behavior under certainty and uncertainty. Topics include heuristics and biases, prospect theory, bounded rationality, intertemporal choice, deviations from the standard classical models, and social preferences.
ECON 3510	Economics of Less Developed Countries	4	This course examines the economic conditions, challenges, and opportunities in less-developed regions. It explores the factors contributing to underdevelopment, the role of government and international institutions, and strategies for sustainable economic growth and poverty alleviation. Students will develop analytical skills to evaluate development issues and propose evidence-based solutions.
ECON 3515	Introductory Health Economics	3	This course offers an introduction to health economics. It focuses on economic analysis of health and healthcare systems. Students will study concepts like healthcare demand/supply, financing, and policy evaluation, with a look at global health disparities and low - middle - income countries.
ECON 3516	Central Banking and Monetary Policy	3	This course delves into the intricate world of Money and Banking, exploring the fundamental structures of financial institutions and their pivotal roles in the creation and distribution of money and near-money assets. Students will gain a comprehensive understanding of the Federal Reserve System, examining its inner workings and the techniques employed by central banks in controlling the supply of financial assets to implement effective stabilization policies.
ECON 3516	Central Banking and Monetary Policy	3	This course delves into the intricate world of Money and Banking, exploring the fundamental structures of financial institutions and their pivotal roles in the creation and distribution of money and near-money assets. Students will gain a comprehensive understanding of the Federal Reserve System, examining its inner workings and the techniques employed by central banks in controlling the supply of financial assets to implement effective stabilization policies.
ECON 3650	Financial Markets and Institutions	3	Financial Markets and Institutions provide the foundational knowledge necessary for understanding the structure, functions, and operations of financial systems. This course explores various financial instruments, institutions, and regulatory frameworks that govern modern financial markets. Through a blend of theoretical concepts and practical applications, students will develop a comprehensive understanding of how financial markets operate and their crucial role in the economy.
ECON 3680	Engineering Economics	3	Engineering Economics provides students with essential economic decision-making techniques used in engineering applications. The course focuses on analyzing financial and economic feasibility of engineering projects, integrating concepts such as time value of money, cost-benefit analysis, risk assessment, and decision-making under constraints. Students will apply engineering economic principles to real-world scenarios, evaluating alternative solutions based on financial viability and strategic considerations.
ECON 3850	The Economics of Sports	3	This course applies core economic concepts and theories to the world of sports, focusing on both U.S. and international contexts. By using microeconomic theory and empirical methods, students will explore the economics of sports leagues, player salaries, competitive balance, and the economic impact of sports on local economies. A particular emphasis will be placed on international sports, such as European football, and how labor markets are managed to maximize league and team revenues. The course also investigates issues like wage disparities among athletes, sports franchise valuation, and the role of government policy in sports economics.
ECON 4101	Applied Game Theory	3	Game theory is a mathematical framework that explores the strategic interactions between rational decision-makers and is widely used in economics, political science, biology, computer science, and many other fields. This course bridges the gap between theory and real-world decision-making by examining the strategic aspects of situations where multiple parties make choices that impact each other. In this course, students will learn how to model and analyze strategic interactions, including competitive, cooperative, and mixed strategies.
ECON 4200	Global Development Economics	3	This course provides an in-depth analysis of economic development theories, policies, and practices. It explores the factors influencing economic growth and development in low-income countries, as well as the challenges and opportunities they face. Topics covered include poverty, inequality, education, health, agriculture, industrialization, trade, finance, governance, and sustainable development. The course also examines the role of international organizations, policies for promoting inclusive growth, and the evaluation of development interventions.

ECON 4225	Public Economics and Fiscal Policy	3	This course provides an analytical examination of the economics of the public sector, focusing on equity and efficiency as primary criteria for public decision-making. It encompasses a study of public choice theory, expenditure theory, public goods, externalities, public provision of private goods, theory of taxation including tax incidence and tax neutrality, principles of fiscal policy, economic stabilization, government borrowing, and federal-provincial fiscal relationships. The course emphasizes technical proficiency and covers core topics in public economics, incorporating both classical and frontier research through theoretical models and empirical analysis.
ECON 4579	Monetary Economics	3	Introduction to monetary economics. Investigation of money supply, demand, and the quantity theory. Analysis of interest rate determination, central bank policies, and the impact on inflation and economic growth. Exploration of financial market behavior in the context of monetary policies. Examination of policies aiming to stabilize the economy.
ECON 4605	Applied Econometrics	3	This course provides an introduction to econometrics, focusing on the application of statistical methods to economic data. The course will focus on fundamental econometric methods such as simple and multiple regression analysis, hypothesis testing, and model evaluation. Students will gain hands-on experience with econometric software and apply these methods to real-world data. By the end of the course, students will be able to conduct their own econometric analyses and interpret the results in a variety of economic contexts.
ENGL 1140	College Writing	3	The College Writing is designed to introduce students to various writing genres and help them develop effective communication skills through written expression. The course will focus on the writing process, emphasizing key aspects of academic writing and expository prose. Students will engage in both creative and analytical writing tasks, developing their abilities in crafting clear, coherent, and well-organized texts. Topics covered will include sentence-level issues, paragraph structure, rhetorical strategies, organization, style, and form. By the end of the course, students will be equipped with the skills needed to write effectively in academic and professional settings.
ENGL 1351	Technical Writing	3	This course will equip you with the skills to create instructive, informative, and persuasive documents with clear and attainable objectives. Technical writing demands precision, conciseness, and organization, particularly when conveying complex information. The chosen style, encompassing document layout, vocabulary, sentence structure, paragraph organization, and visual elements, is influenced by the document's purpose and target audience. Consequently, this course will instruct you in analyzing writing contexts and generating efficient, reader-centered documentsthrough effective and streamlined processes
ENGL 2130	Effective Writing in Humanities	3	Writing in humanities places emphasis on the writing demands of the humanities: analytical, creative, and researched writing as well as comparative, cultural analyses and digital humanities writing. This course will instruct students to write some persuasive arguments about significant issues in the humanities. In this course, students will have lots of opportunities to engage in writing practice of a wider range of writing projects related to humanities careers to improve their professional writing skills. The modes of this writing practice include narrative writing, analysis of a controversy, argumentation, etc.
ERTH 1205	Environmental Science Fundamentals	3	This course offers a comprehensive exploration of Earth's various environmental systems, the environmental challenges it faces, and the root causes behind these issues. Students will embark on a journey to understand the intricate relationships between human activities and the natural world, gaining insights into the complexities of environmental processes and their impact on ecosystems.
ERTH 3530	Introduction to Cryosphere	3	This course offers a comprehensive exploration of the cryosphere's role in the Earth system and its vulnerability to climate change. Students will study key components like ice sheets, glaciers, and permafrost, and their interactions with global climate processes. Through remote sensing, modeling, and regional case studies, the course equips students to analyze cryospheric changes, their impacts on ecosystems and societies, and strategies for mitigation and adaptation in a warming world.
FILM 2100	Introduction to Film Studies	3	This course introduces film study, covering fundamental analysis techniques, vocabulary, and methods. Students explore cinema's aesthetics, forms, and techniques. Through screenings and assignments, they study narrative, cinematography, etc., and enhance analytical skills for film meaning comprehension.
FILM 2300	Film History l	3	Film History l introduces students to the rich film history and the evolution and development as a powerful medium of expression. Key theme include the history of American and international filmmaking from 1895 to 1960, the Hollywood's film studio system.The course explores the cultural, technological, and artistic advances that have shaped the film medium. Students will learn about key film history milestones, influential filmmakers, and groundbreaking films that have shaped film art and industry.
FILM 2301	Film History II	3	Building upon the foundations of Film History I, this course explores the dynamic evolution of cinema as an art and industry from the 1950s to the present day. Key thematic focuses include cinemas of emerging countries, the explosive 1960s, the New Wave, world cinema in the 1970s — an era of retrenchment, the New German Cinema, response to political climate, the New Hollywood era (1970s-1980s), and a reflection on contemporary trends and future directions.
FILM 3015	Cinema and National Identity	3	This course explores the intricate relationship between cinema and national identity, examining how films both reflect and shape the ideologies, values, and culture of a nation. Using theoretical frameworks of identity, nationhood, and globalization, students will critically assess how national cinemas represent the collective memory, struggles, and aspirations of specific countries or cultural groups. The course will engage with key topics such as colonialism, diaspora, and transnationalism, as well as the impact of global media flows on national film industries. By studying the thematic and stylistic trends in films from various countries, students will gain a deeper understanding of the ways in which cinema participates in the formation of national consciousness

FILM 3105	Chinese Film	3	This course explores the rich history and diverse aesthetics of Chinese cinema from the early 20th century to the present. It covers films from Mainland China, Hong Kong, and Taiwan, examining their stylistic features, cultural significance, and political contexts. Students will analyze key films, directors, and movements, considering how cinema reflects and shapes Chinese society. The course will also discuss themes such as nationalism, modernity, gender, censorship, and globalization. Through screenings, readings, and discussions, students will develop a critical understanding of Chinese film history and its impact on global cinema.
FILM 3900	African American Cinema	4	This course examines the evolution of African American cinema from its inception in the early 20th century to its current global influence. This course will provide an understanding of the unique contributions of African American cinema to the global film landscape and its role in reflecting and shaping cultural, social, and political identities. Topics include theories of black film, African American histories, black women and black labor in media. By analyzing films, filmmakers, and cultural movements, students will explore how Black cinema has both reflected and shaped struggles against racial oppression, while carving out spaces for artistic innovation and self-representation.
FINC 2132	Financial Management Fundamentals	3	This course serves as an introduction to the fundamental principles of corporate financial management, providing students with a comprehensive understanding of key concepts that form the basis of financial decision-making within organizations. Participants will explore critical topics such as the time value of money, interest rates, principles of valuation, net present value (NPV), risk and return, and cost of capital.
GEOG 3521	Physical Climatology	3	This course explores the dynamics of the climate system, focusing on the interactions between the atmosphere, oceans, cryosphere, and land surfaces. It covers key concepts like the carbon cycle, the greenhouse effect, natural climate variability, and climate sensitivity to external factors. Students will investigate both historical climate phenomena and human-induced climate change. Emphasis is placed on understanding physical principles and applying climate models to assess past, present, and future climate trends.
GEOG 4120	Climate Change Communication	3	Exploring how climate change is communicated across audiences, institutions, and media, this course delves into the role of messaging in advancing climate policy, ethical considerations, and the intersection of science, politics, and media. Using theoretical frameworks, case studies, and practical strategies, students examine how climate discourse is shaped by individual, institutional, and cultural contexts, fostering skills to engage effectively in climate communication.
GNDS 2500	Intersections of Race, Class, Gender and Sexuality	3	This course provides an introduction to how race, gender, sexuality, and class have been intertwined and coexisted over time to produce and reproduce social inequalities. It explores the key concepts, theories, and historical experiences that form the basis of scholarly work in comparative race, gender, sexuality, and class studies. The creation, transmittal, interpretation and institutionalization of racial, gender, sexual, and class identities are examined through a human rights framework.
HIST 2021	Introduction U.S. History to 1876	3	This course presents the political, social, economic, and cultural history of the United States from the beginning of the colonial period to the end of reconstruction in 1876. Exploring topics such as the colonial period, revolution, confederacy and constitution, the Civil War and reconstruction, students will examine the fundamental events and ideas that shaped the nation and its people during this critical period. Students gain a comprehensive understanding of the United States history to 1876.
HIST 2022	U.S. History Since 1877	3	This course offers a comprehensive exploration of the United States' historical evolution since 1877. It delves into the multifaceted tapestry of American society, with a strong emphasis on the incredible diversity of the American people. Throughout the semester, we will engage in a detailed examination of how an American society comprising numerous cultures and ethnicities has evolved, adapted, and transformed over the past century and a half.
HIST 2620	History of Civil Rights	3	Exploring the complex struggle for equality in the United States, this course examines the evolution of civil rights from the post-Civil War Reconstruction era to the present day. It analyzes the legal, political, and cultural dimensions of movements for racial justice, gender equality, and broader human rights. Special emphasis is placed on the African American civil rights movement of the 1950s and 1960s, while also addressing the roles of women, Indigenous peoples, immigrants, LGBTQ+ communities, and labor activists in advancing civil rights in America.
HIST 2700	Magic, Science, and Religion	4	This course explores the relationships between magic, science, and religion from an anthropological perspective. Students will examine how different cultures understand the world through myth, ritual, healing, and belief. Topics include religious symbols, altered states of consciousness, divination, witchcraft, and the role of religious specialists. We will also look at how colonialism, globalization, and modern science have shaped and challenged traditional belief systems.
HIST 3200	American History in a Global Context	3	This course challenges traditional narratives of American history by examining the United States through a global lens. Rather than treating American history as a self-contained story, we will explore how transnational forces—including migration, trade, war, diplomacy, and cultural exchange—have shaped the nation's development. From the colonial period to the present, we will analyze how the United States has influenced, and been influenced by, the broader world.
HIST 3600	American Religions	3	This course investigates the role of religion in shaping American life from pre-colonial Indigenous traditions to twenty-first-century. We will explore how religion intersected with politics, identity, social movements, law, and memory. Through primary sources and scholarly debates, students will critically examine the evolution and influence of religious ideas and institutions in American history, addressing key themes such as pluralism, religious freedom, civil religion, and the culture wars.

HLTH 1356	Introduction to Health Science	3	This course explores the various factors that shape human health, focusing on the biological, psychological, and environmental influences that contribute to well-being. Students will examine how lifestyle choices, physical activity, mental resilience, and external factors interact to affect overall health and performance. The course encourages critical thinking about the choices that impact personal and community health, providing a holistic view of well-being.
JAPN 3500	Modern Japanese Literature in Translation	3	This course offers an introduction to modern Japanese literature, exploring a variety of genres including fiction, poetry, memoir, and short stories. Students will study the cultural, historical, and political contexts that influenced these works, focusing on key themes such as identity, modernity, and the changing role of tradition in Japanese society. Through lectures, student presentations, and discussions based on the assigned readings, students will gain a deeper understanding of how literature reflects and shapes Japan ' s evolving narrative in the modern world.
LAWS 2812	Introductory Legal System	3	This course serves as an essential foundation for students seeking a comprehensive understanding of the legal system. It provides an in-depth exploration of the legal system and its intersection with public policy issues, with a particular emphasis on understanding the profound impact of the legal environment on decision-making within the realm of management. Students will gain a comprehensive understanding of legal principles, ethical considerations, and international dimensions that significantly shape managerial choices and organizational behavior.
MARK 1300	Introduction to Marketing	3	Introduction to markets and market economies. Exploration of demand, supply, and the production process. Analysis of price determination mechanisms, resource allocation strategies, and income distribution patterns. Investigation of business behavior across diverse market environments, from perfect competition to monopolies. Examination of policies, such as taxes and subsidies, crafted to influence market outcomes.
MARK 2423	Marketing Analytics and Metrics	3	This course integrates economic theory and econometrics to provide students with a comprehensive understanding of marketing strategies and consumer behavior. Emphasizing a multifaceted approach, the course delves into various aspects such as industry structure, historical perspectives, integrated brand promotion, market segmentation, optimal product mix, and effective message placement.
MATH 1526	Introduction to Calculus I	4	Calculus I is an introductory course in calculus, designed to provide students with a solid foundation in differential and integral calculus. The course focuses on the fundamental concepts and techniques of calculus and their applications to solve various mathematical problems. This course serves as a prerequisite for higher-level mathematics and science courses.
MATH 1535	Calculus with Analytic Geometry I	3	Introduction to Calculus with Analytic Geometry I. Delve into the basic principles of limits, derivatives, and integrals. Examine how these concepts interact with analytic geometry, enabling the analysis of geometric shapes, such as determining slopes of curves and calculating areas under them. Investigate the characteristics of functions and solve optimization problems. This course furnishes students with crucial math skills applicable in various STEM fields.
MATH 1536	Calculus with Analytic Geometry II	3	This is a mathematics course that builds upon the concepts introduced in Calculus I. The course covers integral techniques, ordinary differential equations, conic sections, polar coordinates, vectors, two- and three-dimensional analytic geometry, infinite series, sequences and series, Taylor series, numerical solutions of differential equations using Euler's method, and the convergence of improper integrals. This course aims to provide students with a deeper understanding of calculus and its applications in various mathematical and scientific disciplines.
MATH 2015	Introduction to Calculus II	3	MATH 2015 is the second course in the calculus sequence. It builds upon the concepts covered in MATH 1526 (Calculus I) and delves deeper into integration techniques, applications of integrals, sequences, series, and more. The course aims to develop students' understanding of calculus and its applications in various fields.
MATH 2245	Multivariable Calculus	3	This course extends the principles of calculus from single-variable functions to functions with multiple variables. Topics include vectors, vector-valued functions, Green's Theorem, Stokes'Theorem, and Gauss' Theorem, multivariable functions, partial derivatives, multiple integrals,line integrals, surface integrals, vector fields, and their applications. Additionally, students will explore applications in physics, engineering, and other fields.
MATH 2246	Calculus with Analytic Geometry III	3	This course is the third part of a multi-semester sequence in calculus with analytic geometry. It builds on previous calculus courses by introducing advanced concepts in multivariable calculus, vector analysis, and their applications in real-world problems. Topics include vector algebra, vector-valued functions, partial derivatives, multiple integrals, vector fields, and the fundamental theorems of vector calculus. This course is designed for students pursuing mathematics, physics, engineering, or other fields that require a strong foundation in advanced calculus.
MATH 2250	Elementary Real Analysis	3	This course provides a fundamental exploration of real analysis, emphasizing key concepts such as real numbers, sequences, series, infinite sums, sets, basic topology, continuous functions, differentiation, integration, the theorem of calculus, function sequences and series, power series, and metric spaces. Students will develop a strong foundation in the principles of analysis, enabling them to rigorously understand and apply mathematical concepts in various contexts.
MATH 2423	Probability	3	This course offers an overview of probability theory and its applications in various scientific fields.The course covers the mathematical treatment of random events occurring in natural, physical, and social sciences. Topics include mathematical probability axioms, combinatorial analysis, binomial distribution, Conditional probability and independence, Poisson distribution, normal distribution,random variables, probability distributions,moments, sampling distributions, expectations, and limit theorems.

MATH 2450	Ordinary Differential Equation I	3	Explore fundamental concepts of differential equations, such as order, linearity, and solutions. Investigate methods for solving first - order and simple higher - order ordinary differential equations, like separation of variables and integrating factors. Analyze real - world applications in physics, engineering, and biology to model dynamic systems. This course equips students with essential tools for understanding and solving problems involving rate of change.
MATH 2455	Introduction to Biostatistics	3	This course introduces probability and statistical analysis with applications in biostatistics, focusing on biological, health, and environmental sciences. Students will explore key probability distributions, hypothesis testing, regression, and using computational tools for data analysis. The purpose of the course is to introduce students to foundational concepts within the field, foster a statistical perspective for interpreting health-related data, and develop essential critical evaluation skills to assess the credibility of research evidence.
MATH 2501	Abstract Linear Algebra	3	Dive into fundamental concepts like vector spaces, linear transformations, and matrices. Study properties of linear independence, basis, and dimension. Analyze methods for solving systems of linear equations and diagonalization. Explore applications in computer science, physics, and engineering for data analysis and modeling. This course equips students with crucial algebraic tools for advanced mathematical studies.
MATH 2520	Principles of Differential Equations and Linear Algebra	3	Linear algebra and differential equations serve as foundational pillars in modern mathematics and engineering. In this course you will learn the basic concepts and skills of linear algebra that are needed for later math courses, such as differential equations, Vector Spaces, and by other courses needed for your major. The abstract concepts you will learn in linear algebra are as important as the computations. This course is an introduction to the field of differential equations and will include the study of the fundamental concepts and techniques for the analytic and numeric solutions of ordinary differential equations.
MATH 2825	Introduction to Complex Analysis	3	This course provides a comprehensive introduction to complex variable theory and its applications to current engineering problems. It deals with complex numbers, analytic functions, integration, Laurent series, residue calculus and conformal mappings. The course also covers one or more applications of the theory are reviewed.
MATH 2849	Elementary Differential Equations and Laplace Transformations	3	This course is designed to provide a comprehensive introduction to the theory and application of Ordinary Differential Equations (ODEs) with a special focus on solving them using the powerful Laplace Transform. Throughout the course, students will engage in hands-on exercises and computational assignments using mathematical software to solve ODEs and apply the Laplace Transform to various problems. Topics include First order equations, Linear differential equations of higher order, Differential operators, Laplace transforms and more.
MATH 2851	Foundations of Stochastic Processes	3	This course provides a foundational understanding of stochastic processes, focusing on key concepts such as Markov chains, random walks, martingales, Galton-Watson trees, branching processes, Poisson processes, point processes, birth and death processes, queuing theory, stationary processes, as well as simulation and inference for stochastic models. Through theoretical study and practical applications, students will develop the necessary tools to analyze and model random phenomena in various fields including mathematics, statistics, engineering, and finance.
MATH 3006	Abstract Algebra	3	This course explores the foundational concepts and structures of abstract algebra, emphasizing integers, sets, groups, and rings. Topics include properties of integers, group theory (with a focus on permutation and cyclic groups), Lagrange's theorem, subgroups, normal subgroups, quotient groups, and the external direct product of groups. Additionally, the course introduces homomorphisms, isomorphisms, rings, and fields. The focus is on understanding these concepts through rigorous proofs and practical applications in mathematics and related fields.
MATH 3010	Regression Analysis	3	This course focuses on Regression Analysis, which estimates relationships between variables. It introduces basic ideas and models, covering simple and multiple linear regression, least - squares estimation, and hypothesis testing. You'll also study data transformations, handle multicollinearity, and learn variable selection for model building. Nonlinear regression models are included. Practical application in statistical software is emphasized for hands - on learning.
MATH 3018	Mathematical Writing	3	This course focuses on developing students' ability to communicate mathematical ideas effectively through writing. Emphasizing clarity, precision, and logical structure, the course covers mathematical notation, proof writing, technical report writing, and mathematical exposition. Students will practice writing definitions, theorems, and proofs, as well as producing structured mathematical papers and reports. The course is designed to help students enhance their mathematical writing skills for academic, research, and professional purposes.
MATH 3100	Applied Linear Algebra	3	This Applied Linear Algebra course centers on the practical uses of linear algebra. Starting from fundamental concepts, it uncovers their real - world significance and problem - solving techniques. Students study vector spaces, linear equations, eigenvalue problems, orthogonality, least squares, and more. By the end, they're equipped with the skills to apply linear algebraic methods to analyze and resolve real - life issues, bridging theory and practice.
MATH 3300	Categorical Data Analysis	3	This course provides an in-depth exploration of analysis techniques essential for handling categorical data. Topics include descriptive and inferential methods for binomial and multinomial observations, utilizing proportions and odds ratios. It covers multiway contingency tables, generalized linear models tailored for discrete data, logistic regression for binary responses, multicategory logit models for nominal and ordinal responses, and inference techniques for matched pairs and correlated clustered data.

MATH 3320	Applied Probability	3	This course presents a broad range of advanced topics and applications of probability theory, useful in the areas such as communications, signal processing, networks, machine learning, econometrics and mathematical finance. Special attention is given to stochastic processes, including random variables, limit theorems, random processes, Poisson process, discrete-time Markov chains, semi-Markov processes and continuous-time Markov chains and Hidden Markov models.
MATH 3330	Multivariate Statistical Methods	3	This module deals with the theories and techniques of multivariate statistical analysis and their applications. It covers matrices, random vectors, Multivariate Normal Distribution, estimation and hypothesis testing, regression models, Principal Components Analysis, Factor Analysis, Cluster Analysis, Discriminant Analysis and other core contents of multivariate statistical analysis. This also includes applications of data set using statistical software. (Laboratory).
MATH 3371	Numerical Methods Analysis	3	Numerical methods play a crucial role in solving complex mathematical problems that often arise in engineering, science, and various fields. The course provides students with a comprehensive introduction to the fundamental numerical techniques used to approximate and solve mathematical problems. Topics include interpolation and polynomial approximation, numerical differentiation and integration, numerical methods of differential equations, error analysis, the number of conditions for a linear system, linear and nonlinear systems. By the end of the course.students will develop the skills necessary to apply numerical methods effectively. MATLAB software will be uses in this course.
MATH 3418	Linear Optimization Techniques	3	This quantitative course is designed to provide students with a comprehensive understanding of mathematical techniques for optimizing linear objective functions subject to linear equality and inequality constraints. The course covers essential topics such as linear programming modeling, the simplex method and its variants, duality theory, post-optimality analysis, and applications in various fields. Additionally, students will explore relevant software tools to implement and solve linear optimization problems.
MATH 3420	Modern Abstract Algebra	3	This course delves into the study of groups, rings, and fields, which are fundamental algebraic structures, and investigates their properties, operations, and applications. It offers a deep understanding of algebraic concepts beyond elementary algebra. Students will develop a solid understanding of algebraic systems and their applications in diverse mathematical contexts. Course topics include groups, group homo-morphisms， cyclic groups, cosets, Lagrange's theorem, normal subgroups, introduction to rings, ring homomorphisms and more.
MATH 3500	Applied Machine Learning	3	This course introduces students to a wide range of machine learning techniques and tools used in data analysis, predictive modeling, and pattern recognition. The course covers a comprehensive range of topics, such as multivariate linear and multiple regressions, k-nearest neighbors and bootstrap. And it also introduces some typical Statistical Learning methods, including naive Bayes, cross-validation, tree-based methods and so on. Through a combination of theoretical concepts and practical applications, students will gain a solid foundation in machine learning methods.
MATH 3520	Discrete Mathematics with Applications	3	The course is structured to serve as an introduction to the realm of discrete mathematics, aiming to familiarize students with prevalent concepts and methodologies within this field. Its purpose is to acquaint students with fundamental ideas and methods from discrete mathematics that hold broad applicability.Topics included in this course will cover logic and proof, set theory, Algorithms, functions, sequences, number theory, cryptography, mathematical induction, counting methods, graph theory applications, combinations, discrete probability, the inclusion/exclusion rule, relations, etc. Students will develop problem-solving skills and mathematical reasoning abilities.
MATH 3521	Mathematical Interest Theory	3	This course offers a rigorous introduction to the fundamental principles of interest theory and financial mathematics. Students will explore the time value of money, various types of annuities, bond and stock valuation, loan amortization, and yield rates, using both theoretical models and practical applications. The course emphasizes a solid understanding of deterministic models as well as introduces stochastic approaches to interest rate behavior. Students will also gain familiarity with financial instruments and their sensitivities, term structures, and the use of the Texas Instruments BA II Plus financial calculator for real-world computations.
MATH 4525	Survey Sampling	3	This course provides a comprehensive introduction to complex variable theory and its applications to current engineering problems. It deals with complex numbers, analytic functions, integration, Laurent series, residue calculus and conformal mappings. The course also covers one or more applications of the theory are reviewed.
MATH 4601	Advanced Probability Theory	3	This course explores deeper topics in analysis with a focus on convergence, approximation, compactness, and differential calculus in normed spaces. The course introduces special functions, infinite series, Fourier series, and applications to ordinary differential equations. It also covers powerful theoretical tools such as the contraction mapping principle, implicit and inverse function theorems, and the Arzel à -Ascoli theorem.
MATH 4877	Probability and Statistics	3	Understanding uncertainty and making informed decisions require a solid grasp of probability and statistical methods. This course covers the fundamental principles of probability theory and statistical inference, combining theoretical foundations with practical data analysis. Topics include probability axioms, conditional probability, random variables, probability distributions, the Central Limit Theorem, hypothesis testing, and interval estimation. Emphasis is placed on both the mathematical underpinnings and the interpretation of results in real-world contexts. Students will also gain hands-on experience with the statistical computing environment R, enabling them to analyze data effectively and interpret statistical output.

MECH 2110	Mechanics of Materials	3	This course provides a foundational understanding of how materials respond to external forces and environmental conditions. Students will explore the internal forces, stresses, strains, and deformations that develop within solid bodies subjected to axial loads, torsion, bending, and shear. Emphasis is placed on the mechanical behavior of materials, structural member analysis, and the application of fundamental engineering principles to solve real-world problems.
MGMT 2401	Organizational Behavior	3	This course examines the behavioral and psychological aspects of individuals and groups within organizations. It explores how human behavior impacts organizational performance, and how managers can create environments that foster productivity, innovation, and employee well-being. Topics include leadership, effective management skills, motivation, communication, team dynamics, organizational culture, and change management. This course enables students to develop analytical, diagnostic, ethical and personal skills for addressing human interactions in complex organizations with varied and diverse workforce.
MGMT 3210	Applied Strategic Management	3	This course delves into the fundamental concepts, theories, and practices of strategic management and offers a holistic view of how organizations can achieve sustainable competitive advantage in a rapidly evolving business environment. Through lectures, case studies, and practical projects, students will learn how to analyze industry structures, evaluate a firm's competitive position, and develop strategic plans that enhance organizational performance and sustainability.
MGMT 3701	Operations Management	3	This is a comprehensive course designed to provide students with a deep understanding of the concepts,principles, problems, and practices involved in designing, managing, and improving operations in manufacturing and service organizations. The course covers a wide range of topics including operations strategy, project management, quality management, supply chain management, inventory management,and business analytics modules.
MGMT 3720	Human Resource Management	3	This comprehensive course in Human Resource Management (HRM) is designed to provide students with a deep understanding of the critical role that human resources play in organizations. Through a combination of theoretical knowledge and practical application, students will gain the skills necessary to excel in the dynamic field of HRM. Topics include human resource management (HRM), the strategic role of HRM, human resource planning, staffing, performance management and more.
MUSC 1900	American Popular Music	3	This course examines the evolution of American popular music, exploring its role in reflecting and shaping American culture, identity, and politics. Students will engage in critical discussions of genres such as blues, jazz, country, musical theatre, rock, and hip-hop, analyzing their significance as both artistic expressions and historical texts. The course will highlight the ways in which music has served as a marker of cultural identity, political protest, and social change across various time periods in American history.
MUSC 2450	Psychology of Music	3	This course explores various psychological and psychosocial aspects of human musical behavior, including introductory musical acoustics, perception and cognition of music, music and the brain, music processing across world cultures, music and emotions, music and human health, and music in social contexts. Students will examine how music influences emotions, memory, learning, and social interactions, as well as the neural mechanisms involved in music processing. The course will integrate research from cognitive psychology, neuroscience, and musicology to provide an interdisciplinary understanding of music's role in human experience.
MUSC 2768	Music of the African Diaspora	3	This course examines the musical legacy of the African diaspora, beginning with traditional African music and its transformation through contact with European and Islamic cultures. It follows the emergence of Afro-American musical styles in South and Central America, the Caribbean, and North America, including spirituals, blues, and jazz. The course also explores modern urban popular music in postcolonial Africa and the ongoing global exchange of musical forms.
MUSC 3200	Music Performance Production	3	This course comprehensively explores the process of a successful music performance. It covers multi - channel recording, live electronic performance, mixing, and more. Students learn about creating and managing live musical events. They work in groups to produce live shows during the term, getting practical experience and applying theory to real - world scenarios.
PHIL 1230	Reasoning and Critical Thinking	3	Reasoning and Critical Thinking is a course designed to help students develop the essential skills of logical reasoning and critical thinking. Students will learn how to analyze and evaluate arguments, distinguish between valid and invalid reasoning, and identify common fallacies. The course will cover topics such as deductive and inductive argument, logical structures, evaluation of arguments, and the scientific method, etc. Through readings, discussions, and assignments, students will develop their ability and acquire practical techniques to think critically, communicate effectively, and make sound judgments.
PHIL 1400	Introduction to Great Philosophers	3	This course serves as a foundational exploration of the concepts and impacts brought forth by some of the most eminent philosophers within the realm of Western philosophy's history. As participants progress through the course, they will delve into the writings of these influential thinkers, dissecting their notions, reasoning, and frameworks. This educational endeavor seeks to establish a robust bedrock for philosophical cognition within students, while also acquainting them with a diverse array of philosophical lineages and viewpoints.
PHIL 2400	Introduction to Business Ethics	3	This course explores ethical considerations and principles as they relate to the business world. The course examines the moral dimensions of various business practices and decisions, aiming to cultivate a critical understanding of ethical issues and develop skills for ethical decision-making in business environments. Topics covered include corporate social responsibility, ethical leadership, stakeholder theory, sustainability, business and the environment, consumer ethics, and global business ethics.

PHIL 2613	Philosophy of Science	3	This course aims to introduce students to the core issues of the philosophy of science, especially the debates on the nature of scientific method, confirmation theory, demarcation between science and non-science, the rationality of theory change, and scientific realism. Through the analysis of scientific theories' structure and functionality, as well as the progression of scientific knowledge, the course explores the reason and objectiveness.
PHIL 2912	Introduction to Ethics	3	A critical exploration of the foundations of morality and moral knowledge, this course examines various philosophical perspectives on ethical theory. Students will engage with key normative ethical frameworks such as hedonism, consequentialism, deontological ethics, virtue ethics, and feminist ethics, while also addressing metaethical questions about the nature of morality. The course delves into the challenges posed by ethical pluralism and moral relativism, offering a comprehensive overview of moral philosophy' s role in guiding human behavior. Through thoughtful analysis and discussion, students will assess the philosophical arguments behind these ethical theories and explore their real-world applications.
PHIL 3100	Modern Philosophical Classics	3	This course offers an in-depth study of selected philosophical texts from the modern period of Western philosophy, roughly spanning the 16th to the 20th centuries. Students will examine the works of key philosophers such as Descartes, Spinoza, Leibniz, Locke, Berkeley, and Hume, as well as influential thinkers like Galileo, Hobbes, Rousseau, Freud, Marx, Virginia Woolf, and Sartre. The course explores fundamental philosophical themes, including epistemology, metaphysics, ethics, political philosophy, and existentialism, with an emphasis on how these ideas shaped modern thought. Through critical reading and discussion, students will engage with the texts in their historical contexts and assess their continuing relevance today.
PHYS 1023	Introduction to Classical Physics	4	A concentration on general principles and analytical methods in physics. This course is designed to equip students with a solid understanding of the physical laws and theories that govern the behavior of everyday objects and the interactions between them.Throughout the course, students will engage in hands-on experiments, problem-solving exercises, and thought-provoking discussions to deepen their understanding of classical physics.
PHYS 1401	Physics for Life Sciences I	4	The primary goal of this course is the presentation of selected principles and topics in physics with applications to the life sciences. Main topics will involve mechanics, work, energy and power, linear momentum and impulse, angular momentum, rotational motion, heat and the first law of thermodynamics. Students in this course are required to have basic knowledge of calculus and analytical methods.
PHYS 1536	Introductory Mechanics	4	This course provides an introduction to the fundamental concepts of mechanics, covering the dynamics of particles and rigid bodies using vectors and calculus. Students will explore topics such as conservation of energy and momentum, as well as kinetic theory. These concepts serve as the cornerstone for understanding various principles in the physical sciences and engineering disciplines.
PHYS 1552	Physics for Life Sciences II	4	Physics for Life Sciences II is a continuation of the introductory Physics for Life Sciences I course, designed specifically for students pursuing studies in the life sciences. This course provides a comprehensive introduction to the principles of electricity and magnetism. It covers the fundamental concepts, laws, and applications of electromagnetism. Students will explore electric fields, magnetic fields, electromagnetic waves, and their interactions with matter. The course includes both theoretical foundations and practical applications, with a focus on developing problem-solving skills.
PHYS 2301	Circuit Theory and Electronics	4	Analysis of circuit variables and elements, including resistive networks, operational amplifiers, and transient responses of RL, RC, and RLC circuits. Investigation of linear and nonlinear circuit behavior, element I-V characteristics, AC power computations, and balanced three-phase systems. Application of Laplace and Fourier transforms in circuit analysis to facilitate frequency-domain interpretations. A laboratory component integrates theoretical principles with practical circuit design and experimentation.
PHYS 2400	Principles of Electricity and Magnetism	3	This course, based on classical mechanics and calculus knowledge, delves into electric and magnetic fields. It covers topics like Coulomb's law, electric potential, and Maxwell's equations, offering an in - depth understanding of their properties and interactions.
PHYS 2460	Principles of Modern Physics	3	The Principles of Modern Physics course expands on classical physics. It explores quantum mechanics, special relativity, and more. Students build a strong foundation in modern physics concepts, understanding how scientific progress has influenced today's technology.
PHYS 3367	Mathematical Methods For Physics	4	PHYS 3367 is designed to provide students with a solid foundation in the mathematical tools essential for studying physics. Topics covered include ordinary and partial differential equations, complex analysis, vector calculus, linear algebra, special functions, integral transforms, and numerical methods. This course aims to equip students with the mathematical skills as well as computational methods necessary for advanced physics research and coursework.
POLI 2793	Environmental Policy	4	Policymaking frameworks for defining environmental problems and crafting solutions; major regulatory strategies, including the Clean Air Act, the Clean Water Act, and the role of the Environmental Protection Agency; approaches to hazardous waste management and ecosystem-based governance, illustrated by cases such as Love Canal and Chesapeake Bay; historical tensions between economic development and environmental protection, involving oil exploration, federal grazing policies, wildlife conservation, and conflicts over recreational land use; emerging environmental challenges, including climate change, renewable energy development, shale gas extraction, urban growth management, and water resource sustainability; and the evolving impact of political values and trade-offs on environmental policy outcomes.

POLI 3350	Global Food Security	3	Physics for Life Sciences I is designed for life science students. This course covers fundamental physics concepts applicable to biological and medical studies. It includes mechanics, thermodynamics, and wave motion, teaching students how physical laws underpin life - science phenomena to aid in their research and understanding.
PSYC 1040	Foundations of Psychology	3	This course provides an overview of the foundational concepts, theories, and methods in psychology. Topics covered include the history of psychology, research methods, biological bases of behavior, nervous system, sensation and perception, language, and thought, learning, memory, motivation, emotion, personality, psychological disorders, and therapy.
PSYC 2040	Introductory Psychology	3	This introductory course offers a comprehensive exploration of the fascinating field of psychology, providing students with a foundational understanding of the mind, behavior, and the scientific principles that underlie psychological research. Through a combination of lectures, readings, discussions, and practical exercises, students will embark on a journey to unravel the complexities of human thought and behavior.
PSYC 2050	Introduction to Child Development	3	This course delves into the multifaceted exploration of child development, integrating foundational theories and cutting-edge research in developmental psychology. It provides a comprehensive examination of various domains, including learning, cognition, perception, personality, and social development in infancy and childhood. Through a blend of theoretical frameworks and empirical studies, students will gain a nuanced understanding of the intricate processes that shape the growth and maturation of children.
PSYC 2100	Lifespan Development	3	This course introduces major concepts, theories, and research related to human development from the prenatal period to the end of life. The course will explore various physical, cognitive,emotional, and social changes that occur across different stages of life. Significant factors influencing individual functioning, including biological, psychological, sociocultural, and environmental factors, will be critically analyzed.
PSYC 2731	Statistics in Psychology	3	This course provides an introduction to statistical methods commonly used in psychological research. The course covers fundamental concepts and techniques essential for analyzing and interpreting data in psychology. Students will learn how to apply statistical tools to explore relationships, test hypotheses, and draw conclusions from empirical data. Emphasis will be placed on understanding the rationale behind statistical procedures, interpreting statistical output, and critically evaluating research findings. Practical applications of statistics in psychological research will be highlighted throughout the course.
PSYC 3001	Health Psychology	3	This course comprehensively introduces fundamental concepts and principles of health psychology. It emphasizes an in-depth understanding of the complex interactions between biological, psychological, and social factors in health and illness. Topics include the impact of stress, strategies for coping, health behaviors, chronic illnesses, psychology in healthcare settings, and treatments. With an integration of theory and practical applications, students can apply health psychology principles in various
PSYC 3200	Applied Social Psychology	3	In-depth study of social perception, attitudes, prejudice as well as interpersonal attraction. Modules include social influence, aggression, groups, leadership, and the current research of social psychology. The course explores how social psychological theories and research can be used to understand and address various social issues and problems. Students will be exposed to social behaviors, attitudes, and group dynamics. They will learn to critically assess the effectiveness of different strategies and explore evidence-based approaches to address complex social problems.
PSYC 3252	Introduction to Cognition	3	This course explores how brain development influences cognitive functions such as attention, language, and emotion throughout the lifespan. Students will examine the underlying principles of brain development and neuroplasticity, focusing on how these processes shape cognition and behavior. The course emphasizes how the brain supports complex cognitive functions and how these processes evolve with age, experience, and environmental factors, using insights from both psychology and neuroscience to understand cognitive development in various domains. (Laboratory)
PSYC 3800	Forensic Psychology	3	Forensic Psychology explores the intersection of psychology and the legal system. This course examines how psychological theories and research are applied in criminal investigations, jury decision-making, police interrogations, eyewitness testimony, and the assessment of offenders. Topics include investigative psychology, the psychology of false confessions and false memories, the role of forensic psychologists in the courtroom, risk assessment, and criminal profiling. The course also addresses contemporary issues such as wrongful convictions and the ethical challenges of forensic practice. Students will gain an in-depth understanding of psychological principles in the justice system and develop critical thinking skills applicable to real-world forensic cases.
PSYC 3920	Neurobiology of Learning and Memory	3	This course is designed to explore the contemporary state of the neurobiological knowledge of learning and memory. The topics to be addressed encompass various types of learning and memory, disorders like amnesia and dementia, as well as an introductory look into the cellular and molecular mechanisms underlying memory formation. Students will gain a comprehensive understanding of how the brain encodes, stores, and retrieves information, as well as the implications of these processes for behavior and cognition. Upon completion of this course, students will possess a comprehensive understanding of the prevailing perspectives on the biological mechanisms of learning and memory, enabling them to critically assess new discoveries in this field.
SOCI 1060	Foundations of Sociology	3	Foundations of Sociology is a comprehensive course designed to provide students with a foundational understanding of the key concepts, theories, and methodologies within the field of sociology. The course aims to develop critical thinking skills and sociological imagination to analyze and interpret social phenomena, structures, and processes. By examining various social institutions, social interaction, and social change, students will gain insights into the complexities of human behavior and social relations.

SOCI 4815	Social Work Practice with Families	3	Focusing on the family as a dynamic and interconnected system, this course explores theories, practices, and intervention strategies relevant to social work with diverse family structures. It examines family roles, rules, relationships, communication patterns, and the influence of cultural, economic, and psychosocial factors on family functioning. Students will learn to assess family systems and apply evidence-based approaches to support families in managing life challenges, mental health issues, intergenerational conflict, and transitions such as divorce or migration. Emphasis is placed on ethical, culturally sensitive, and strengths-based social work practice with families across the life course.
STAT 1100	Introduction to Statistics	3	This course is an introduction to statistics, focusing on fundamental concepts and techniques for analyzing and interpreting data. Topics covered include descriptive statistics, probability, probability distributions, statistical inferences, and various statistical analyses. Emphasis will be placed on applying statistical concepts to real-world problems and developing critical thinking skills.
STAT 2114	Introductory Data Science	3	This survey course serves as a comprehensive introduction to the fundamental principles and techniques in the field of data science. Designed for students with diverse backgrounds, the course covers key elements essential to understanding and working with data, including data collection, management, curation, and cleaning. Students will gain proficiency in summarizing and visualizing data, allowing them to derive meaningful insights and communicate findings effectively.
STAT 2115	Analysis of Variance	4	Intended to provide students with a comprehensive understanding of the theory and application of analysis of variance (ANOVA) techniques in statistical analysis. Topics will include various ANOVA models, such as one-way ANOVA, two-way ANOVA, and factorial ANOVA, as well as multiple comparison methods, block design, and more. Course includes computer lab.
STAT 2140	Applied Statistics Research	3	This applied statistics course equips students with essential knowledge and practical skills for data analysis and interpretation. It covers a wide range of statistical methods like ANOVA, regression, and goodness of fit. By applying these techniques, students learn to solve problems, make predictions, and draw insights. It serves as a strong foundation for further studies in stats, data science, etc.
STAT 3055	Introduction to R for Data Science	3	This course introduces students to the fundamental concepts in data science, covering the entire data science workflow, various aspects of statistical and machine learning techniques. It explores the R programming language and R packages for data manipulation, visualization, and modeling. Through hands-on laboratory sessions, students will engage in practical exercises, turning raw data into meaningful insights, knowledge, and understanding, and effectively communicating analytical results using R, RStudio and R Markdown.
STAT 3250	Nonparametric Statistical Methods	3	This course systematically introduces basic concepts and practical methods of nonparametric statistics. Topics will include confidence interval, Walsh averages, signed rank test (Wilcoxon), one-sample t-test, two-sample procedures, Medians Equal, Kolmogorov – Smirnov test, Kruskal – Wallis test, Spearman's rank, Chi-Square Test, and ranked set sampling. In this course, students are required to launch a final project and conclude a data report to demonstrate their proficiency in applying appropriate nonparametric methods.
STAT 3575	Data Science Through Statistical Reasoningand Computation	3	Understanding modern data requires more than raw computation—it demands the ability to reason statistically, frame relevant questions, and translate between data and conclusions. This course develops foundational skills in statistical reasoning and computational methods for analyzing, visualizing, and modeling data. Students will explore how to approach data problems from a scientific perspective, integrating real-world case studies and computational workflows using the R programming language. Emphasis is placed on reproducible research, effective communication of results, and critical thinking about data-driven claims.
STAT 4100	Statistical Theory	3	This course provides a foundation in statistical theory, focusing on the probabilistic and mathematical underpinnings of statistical inference. It begins with the basics of probability, random variables, and distributions, and progresses to sampling theory, estimation, hypothesis testing, and applications to regression and categorical data. Emphasis is placed on theoretical derivations, mathematical expectations, and understanding the behavior of estimators. The course prepares students for advanced study in statistics and quantitative data analysis.
STAT 4202	Mathematical Statistics	3	This advanced Mathematics Statistics course offers a solid foundation in the field. It delves into key statistical inference concepts like point and interval estimation, and hypothesis testing. Students learn to create and assess statistical models, estimate parameters, and draw population inferences from samples. Combining theory with practical applications, it readies students for further study or careers in stats, data science and related areas.
STAT 4203	Statistical Design and Analysis of Experiments	4	This course offers a step-by-step guide to the experimental planning process and the ensuing analysis of normally distributed data. We will not only examine the topics of sample size, crossed treatment factors, blocking factors, factorial experiments, nested models, and split-plot design, but also discuss response surface methodology, fractional factorial experiments, random effects and variance components, and computer experiments.