

International Credit Program at Elmira College
Spring 2026 Course Listing as of 11/27/2025

Course Code	Course Title	Credits	Course Description
ANTH 1105	Foundations of Biological Anthropology	3	This course is a comprehensive exploration of the fascinating field that examines the biological and evolutionary aspects of human beings, providing a solid foundation in the scientific study of human origins, evolution, genetics, and the relationship between biology and culture. Students will gain a deeper understanding of the biological factors that have shaped human diversity, behavior, and adaptation.
ARTH 2143	Eighteenth-Century European Art	3	Eighteenth-century European art embodies a period of profound cultural, social, and political transformation. Through the close examination of painting, sculpture, architecture, and decorative arts, this course explores the aesthetic developments of the century, from the splendor of Rococo to the intellectual rigor of Neoclassicism. Students will analyze how art was created, the conditions of artistic production, and the shifting roles of artists within religious, political, and aristocratic patronage systems. Topics include artistic techniques and materials, the circulation of objects and ideas, and the intersection of art with Enlightenment thought, colonialism, and emerging modernity.
ARTH 3360	Digital Printing	4	The advancements in digital technology have revolutionized the printing industry, leading to multi-technology integration. This course aims to enhance students' knowledge and skills in various digital printing technologies, enabling them to select the most appropriate technology based on the nature of the work. Through theoretical study and practical application, including computer labs, students will gain the knowledge and skills needed to excel in the modern digital printing landscape.
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 4300	Contemporary Chinese Popular Culture	3	This course explores contemporary Chinese literature and popular culture from the end of the Mao era to the present. Students will study fiction, poetry, and essays that reflect China's social transformations in the context of reform, opening, and globalization. Special emphasis will be placed on how literature interacts with popular culture, including film, visual media, music, and the rise of urban youth culture.
BCHM 3153	Protein Biochemistry Structure and Functions	3	This course provides an in-depth exploration of protein structure and its relationship to function. Students will learn about the fundamental principles underlying enzyme kinetics and the various factors that influence enzyme activity. The course will also cover the mechanisms by which enzymes catalyze biochemical reactions and the regulation of enzyme activity in cellular processes. Additionally, students will be introduced to the field of protein engineering and its applications in modifying and designing proteins with desired properties.
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 3900	Immunology	4	This course explores how immune cells and their functions coordinate defense mechanisms against pathogens, while also examining the immune system's role in autoimmune disorders, allergic reactions, and cancer. Students will develop a foundational understanding of immunological processes, including their cellular and molecular mechanisms.
BUSI 2212	Professional Business Writing	3	This comprehensive course is designed to equip students with the essential skills needed to communicate effectively within the dynamic and diverse environments of organizations, spanning corporations, government agencies, and non-profit organizations. The course focuses on developing students' proficiency in written communication, a critical aspect of professional success in various career paths that demand substantial interaction within and outside organizations.
COMM 1080	Introduction to Public Speaking	3	This course is designed to develop students' skills in public speaking and to provide a comprehensive overview of the theories and practices that underlie effective communication. The content will be covered include: theory, practice, analysis, and ethics of public speaking. Students will learn how to analyze their audience and tailor their messages accordingly, how to organize their thoughts effectively, and how to do rhetorical choice and use various delivery techniques to engage and persuade their listeners.

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COMM 3360	Audio Storytelling & Podcasting	3	This course introduces students to the craft of creating compelling audio stories, drawing inspiration from public radio programs and narrative podcasts. Students will learn to conceive, research, write, and produce engaging stories for audio platforms. Emphasis is placed on conversational writing, in-depth journalistic reporting, and long-form storytelling. Students will acquire skills in interviewing, story mapping, remote and field recording, multi-track editing, mixing, and final production for broadcast or podcast distribution. The course balances theory and practice, guiding students through each stage of production—from pitch to polished piece.
COMM 3430	Digital Games and Society	3	Digital games have become a powerful and influential medium that extends far beyond entertainment. This course examines the complex relationship between games and society, exploring how games shape—and are shaped by—culture, psychology, identity, and technology. Students will critically engage with research and debates surrounding both the positive and negative impacts of gaming on individuals and communities.
COMP 1001	Information Technologies	3	Information Technologies explores the essential concepts and applications of modern computing systems and digital tools that support both individual productivity and organizational operations. The course emphasizes practical skills in using personal software tools such as spreadsheets and image editors, understanding fundamental programming techniques, and developing websites. It also investigates broader technology themes, including computer hardware and software architecture, database management, computer networks, e-commerce systems, and cybersecurity principles such as cryptography and secure communication. By combining foundational knowledge with hands-on practice, students gain a comprehensive understanding of how information technologies shape contemporary life and business.
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	This course will use Python as our primary programming language and compare it to the structures in other high-level programs. It surveys fundamental concepts in computer programming and data science, including data types, functions, modules, classes, and methods. Additionally, it goes deeper into the testing and debugging of a program. Students are required to write and run basic programs.
COMP 1500	Discrete Mathematics for Computer Science	3	This course introduces fundamental concepts in discrete mathematics with a focus on applications in 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 2073	Digital System	3	This course covers the principles of digital design, including Boolean algebra, logic gates, sequential and combinational circuits, and memory systems. Students will learn to design and analyze digital systems using Verilog, and explore advanced topics like FPGAs, ASICs, and programmable logic devices. Hands-on practice and real-world applications will help students gain a comprehensive understanding of digital circuit design.
COMP 3125	Software Engineering	3	This course provides an in-depth exploration of both object-oriented and traditional software engineering methodologies, building upon the foundational analysis and design concepts previously introduced. It encompasses a comprehensive study of the entire software development lifecycle, from requirements gathering and system design to implementation, testing, and maintenance. The curriculum places significant emphasis on object-oriented principles and the application of the Unified Modeling Language (UML) to model and document software systems. Key topics include the fundamentals of software engineering, such as requirements engineering, software design patterns, system architecture, and quality assurance. The course also covers essential aspects of project management, including planning, scheduling, and risk assessment, to equip students with practical skills for real-world software development projects. Through a combination of lectures, hands-on projects, and case studies, students will gain a thorough understanding of modern software engineering practices and the ability to apply them in diverse development environments.

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COMP 3960	Systems Programming	4	This course provides a comprehensive introduction to systems-level programming in the C language, emphasizing both fundamental and advanced programming concepts in a Unix environment. Students begin by mastering C syntax, data types, control structures, and formatted input/output. Through hands-on computer labs, they progressively learn about arrays, functions, pointers, strings, and preprocessor directives. The course transitions into the design and organization of larger programs using structures, unions, and enumerations, and explores advanced pointer techniques, low-level memory manipulation, and program modularization. Students will also gain familiarity with the Unix system interface, standard C libraries, and best practices for program design and debugging. Throughout the course, emphasis is placed on understanding how C programs are built and executed, writing efficient and maintainable code, and using system-level features for performance and reliability. Regular lab sessions reinforce learning and provide practical experience in building, testing, and troubleshooting C programs in a professional development environment.
COMP 4012	Computer Networking	3	This course provides a comprehensive introduction to computer networking concepts, architectures, protocols, and technologies. Students will explore both theoretical foundations and practical implementations spanning from physical transmission to security and application-layer services. The course follows a layered approach aligned with major reference models such as OSI and TCP/IP.
COMP 4220	Database Management	3	This course introduces students to the theory, design, development, and management of relational databases. Focusing on practical skills and conceptual understanding, the course will enable students to manage relational databases effectively in various environments. Students will learn to design, implement, and maintain databases to meet organizational needs, optimize performance, and ensure data integrity and security. Topics will cover fundamental principles of database systems, relational database management systems (RDBMS), and advanced database management techniques.
COMP 4255	Pattern Recognition and Machine Learning	4	This course delves into the fundamental principles of pattern recognition and machine learning, offering a comprehensive exploration of both theoretical concepts and practical applications. Students will delve into supervised and unsupervised learning techniques, gaining insights into regression, classification, and clustering algorithms. Through rigorous mathematical analysis and hands-on implementation, students will develop a solid understanding of algorithmic mechanisms and their implications in real-world scenarios. Additionally, the course covers advanced topics including ensemble methods, deep learning architectures, and Bayesian inference, empowering students to tackle complex data analysis tasks with confidence. Combining theoretical knowledge with practical skills through projects and assignments, students will be adept at using machine learning techniques to extract meaningful patterns and insights from diverse data sets, with a focus on application in R.
COMP 4780	Interaction Design and Technology	4	This course introduces students to the principles, processes, and methods of interaction design. Students will explore cognitive, social, and emotional aspects of user interaction, data-driven design, and evaluation techniques. Theory is integrated with hands-on labs to provide practical experience in designing, prototyping, and evaluating interactive systems.
COMP 4801	Prototyping in Interaction Design	4	This course immerses students in the theory and practice of prototyping for both digital and physical products. Through a blend of conceptual understanding and hands-on exercises, students will explore prototypes as mindsets, investigate fidelity levels, navigate prototyping processes, and apply best practices across digital and electronic contexts. Emphasis is placed on testing prototypes with real users, integrating feedback, and synthesizing multimodal design workflows. The course culminates in a capstone experience bringing together physical and digital prototyping through a real-world case scenario.
COMP 4802	Database Management Systems	4	This course provides a comprehensive exploration of database management systems (DBMS), emphasizing the principles, design, implementation, and administration of modern database systems. Students will gain an understanding of the core components of a DBMS, including data models, query languages, transaction management, and storage structures. The course also covers advanced topics such as distributed and parallel databases, object-oriented and XML-based databases, as well as emerging applications in data analytics and data warehousing. By the end of the course, students will be equipped with both theoretical knowledge and practical skills to design, implement, and manage robust database solutions for real-world applications.
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 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.

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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 2104	Intermediate Microeconomics I	3	This course offers an in-depth analysis of key concepts and models used to understand the behavior of consumers, firms, and markets. This course will explore core areas of microeconomic theory, including economic methodology, consumer theory, the theory of the firm, competitive markets, and efficiency. Emphasis will be placed on understanding how these theories apply to real-world economic policies and decision-making processes. Students will gain insight into how microeconomic principles influence public policy decisions, focusing on how market structures and behavior shape economic outcomes and the role of government intervention.
ECON 2119	Economics of Innovation	3	Innovation drives long-run economic growth by transforming ideas into productive technologies, products, and processes. This course applies microeconomic theory to understand how incentives, institutions, and market structures shape the creation and diffusion of innovation. Using tools from industrial organization, public economics, and contract theory, students will examine how firms identify and close productivity gaps, how governments design policies that stimulate inventive activity, and how intellectual property rights and research incentives influence the innovation ecosystem. Emphasis is placed on models of cumulative innovation, the economics of intellectual property, optimal prize and subsidy design, and the strategic behavior of firms in innovative industries.
ECON 2563	Introduction to Statistics and Economics	3	This course introduces students to the statistical approaches required for data analysis in business and economics settings. Students will learn descriptive statistics, probability theory, hypothesis testing, and regression analysis. Students will learn data gathering, organization, analysis, and presentation skills via a combination of lectures and hands-on exercises. The emphasis will be on providing students with the skills required to make informed decisions, solve real-world issues, and critically assess data-driven arguments in business and economic contexts.
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 3515	Introductory Health Economics	3	This course provides an introduction to the field of health economics, focusing on the economic analysis of health and healthcare systems. Students will explore the key concepts, theories, and methods used in health economics to understand the behavior of healthcare providers, consumers, and policymakers. Topics covered include the demand and supply of healthcare, healthcare financing, insurance, cost-effectiveness analysis, and healthcare policy evaluation. Additionally, this course delves into alternative payment systems, risk management, fairness in healthcare distribution, and the impact of imperfect information on health economics. Special attention will be given to examining global health disparities and evaluating health economic concepts within the context of low and middle-income countries.
ECON 3769	Applied Microeconometrics	3	This course provides a rigorous introduction to applied microeconomic techniques with a focus on cross-sectional and panel data analysis. Students will learn both the theoretical underpinnings and practical applications of econometric methods used in modern empirical research. Topics include estimation and inference in linear and nonlinear models, instrumental variables, generalized method of moments, maximum likelihood estimation, limited dependent variable models, and methods for evaluating treatment effects. Emphasis will be placed on understanding assumptions, recognizing limitations, and applying econometric tools to real-world microeconomic data.
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.

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ECON 4115	International Finance	3	ECON 4115 provides students with engaging, balanced coverage of the key concepts and practical applications of International Finance. Topics covered include balance of payments, exchange rates, economic policies, International Monetary System, financial globalization and international financial institutions. Core theoretical principles will be complemented by a series of application chapters that confront policy questions using the latest empirical work, data, and policy debates.
ENGL 1020	ESL Reading and Writing	3	This course is designed for intermediate to advanced non-native English speakers who wish to strengthen their academic writing and reading skills. Emphasis is placed on developing strategies for reading academic texts critically and producing clear, organized, and well-supported written work. Students will engage in a variety of reading and writing tasks that will enable them to analyze, summarize, synthesize, and respond to texts. By the end of the course, students will be prepared to participate successfully in academic reading and writing tasks across university disciplines.
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 1150	Writing as Critical Inquiry	3	This course is designed to elevate your proficiency in writing, reading, and research. Through critical examination of texts, you will refine your reading skills, pose thought-provoking questions, and establish meaningful connections that will be incorporated into your writing. Employing rhetorical strategies, you will craft well-supported claims within discussions centered on diverse literacy perspectives. The course aims to not only enhance your writing abilities but also deepen your understanding of the nuanced interplay between reading, questioning, and research in the construction of compelling and informed written expressions.
ENGL 1251	Rhetoric and Composition	3	This course introduces students to rhetorical concepts, teaching them to apply these principles in crafting diverse genres of writing tailored to specific rhetorical contexts. Through iterative revision, students refine their drafts, editing their work to achieve polished texts, and engaging in reflective analysis of their writing process. Additionally, students practice reading complex texts and utilizing information technologies.
ENGL 2120	Introduction to Literature	3	This course is focused on building your reading, writing, and research skills through the study of fiction, poetry, and drama. Students will learn to interpret and discuss literary texts, develop arguments, and practice clear, effective composition across analytical and creative forms.
ENGL 3058	Rhetoric and Writing Mastery	3	This course introduces students to the foundations, historical development, and contemporary applications of rhetorical theory. Beginning with the origins of rhetoric in classical antiquity, students will explore how rhetorical traditions evolved through the Middle Ages, the Renaissance, and into the modern era. Particular attention will be given to how rhetorical theory has been shaped by philosophical, political, and cultural contexts, as well as how it continues to inform communication, persuasion, and public discourse today. Through critical readings, comparative analyses, and applied assignments, students will develop a deep understanding of rhetoric as both an art and a field of inquiry.
ENGL 3300	Global Perspectives in Literature	3	This course examines contemporary global literature through the lenses of identity, translation, migration, and border-crossing. Working with novels, memoirs, poetry, and theoretical essays, students analyze how writers navigate cultural, linguistic, political, and personal borders. Through weekly pairings of literary texts and theoretical readings, students explore how narratives shape understandings of identity and belonging in a global world.
FILM 2100	Introduction to Film Studies	3	This course provides an introduction to the study of film, focusing on the fundamental techniques, vocabulary, and methods of film analysis. Students will explore the aesthetics, forms, styles, and techniques of cinema, learning how to critically engage with film as both an art form and a cultural text. Key areas of study include narrative structure, mise-en-scène, cinematography, editing, sound, and genre theory, along with an examination of influential filmmakers and film movements. Through screenings, discussions, and written assignments, students will develop analytical skills and a deeper understanding of how films convey meaning.
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.
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.

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FINC 3702	Advanced Corporate Finance	3	This course provides an in-depth examination of the theoretical and practical aspects of corporate finance. Building on fundamental financial concepts, it explores advanced topics in capital structure, financing decisions, and corporate governance, focusing on real-world applications. Students will analyze financial strategies through case studies, financial modeling, and current research to understand how corporations manage risk, value assets, and maximize shareholder wealth in an ever-changing market environment.
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.
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.
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 1100	Precalculus	3	This course prepares students for success in Calculus by developing a strong foundation in algebraic, graphical, and trigonometric concepts. Students learn to analyze functions, solve equations, model real-world problems, and apply mathematical reasoning. Topics include functions and graphs, polynomial and rational functions, exponential and logarithmic functions, trigonometry, analytic geometry, sequences, probability, and an introduction to limits and derivatives.
MATH 1535	Calculus with Analytic Geometry I	3	An introductory course in calculus and analytic geometry that focuses on the core concepts and applications of single-variable calculus. It develops a strong foundation in differential and integral calculus, with an emphasis on understanding the geometric interpretation of these concepts. Topics include functions, limits, derivatives, L'Hopital's Rule, antiderivatives, and definite integrals. Students will learn to solve a variety of problems using calculus, including optimization, related rates, and modeling real-world phenomena.
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 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 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 3017	Mathematics For Economic Analysis	3	This course is designed to provide students with an advanced understanding of mathematical techniques essential for the field of economics. It integrates rigorous mathematical concepts with economic theory, emphasizing the application of quantitative methods such as differential and integral calculus, linear algebra, and matrix algebra to solve economic problems. The curriculum covers a range of topics from geometric sequences and exponential functions in finance to the application of calculus in profit maximization and utility maximization.
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 homomorphisms, 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.

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MATH 4100	Functional Analysis	3	This course introduces the fundamental structures and theorems of functional analysis and their applications to operator theory, distribution theory, and partial differential equations. Topics include topological vector spaces, normed and Banach spaces, duality, Banach algebras, spectral theory, distributions, and semigroups of operators. The course emphasizes both theoretical development and applications to analysis, PDEs, and mathematical physics.
MATH 4200	Fundamentals of Partial Differential Equations	3	This course serves as an essential introduction to the world of Partial Differential Equations (PDEs). PDEs are mathematical tools used to describe and analyze complex physical and scientific phenomena, from heat diffusion to quantum mechanics. This course covers the fundamental principles, techniques, and applications of PDEs, such as maximum principles for elliptic equations and classical solution of the Laplace equation, Green's functions and variational methods, providing students with the knowledge and skills to understand and work with these equations effectively.
MGMT 4110	Investment and Portfolio Management	3	This course examines the principles, theories, and practices of modern portfolio management. Students will explore asset classes, investment instruments, market operations, and quantitative models for risk and return. Emphasis is placed on portfolio construction, performance evaluation, and risk management strategies across both domestic and international markets. The course combines theoretical foundations with empirical evidence and real-world applications.
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. It introduces key principles of fluid mechanics, thermodynamics, electricity, magnetism, and electromagnetic waves. The course emphasizes conceptual understanding and problem-solving skills, with laboratory experiments to reinforce key principles.
PSYC 3225	Quantitative Research in Psychology	3	In-depth study of quantitative research in psychology. Modules include frequency distributions, measures of central tendency and variability, normal curve and more. The course equips students with the essential knowledge and skills required to conduct empirical research using quantitative methodologies in the field of psychology. Students will master the intricacies of designing, implementing, and analyzing quantitative research project.
PSYC 3252	Introduction to Cognition	3	This course explores the fundamental theories, research, and applications related to cognitive development from infancy through adulthood. Topics include perception, attention, memory, language acquisition, problem-solving, executive function, and the influence of culture and environment on cognitive growth. Emphasis is placed on contemporary research findings and their practical implications for education, parenting, and cognitive enhancement strategies.
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 3777	Gendering Asian America	3	This course examines the cultural politics of gender and sexuality in the making of Asian America through a historical and interdisciplinary lens. Students will trace how migration, exclusion, war, and globalization shaped Asian American identities, communities, and cultural expressions. Particular attention will be paid to how race, gender, and sexuality intersect in the regulation of Asian bodies, the negotiation of kinship and intimacy, the experiences of labor and displacement, and the articulation of resistance and activism. Through historical narratives, feminist and queer critiques, and analysis of literature and media, students will explore how Asian/American encounters illuminate broader struggles for justice, belonging, and citizenship.
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.

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STAT 3575	Data Science Through Statistical Reasoning	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 4011	Applied Statistical Models	3	This course introduces students to the theory and application of statistical and computational models for analyzing data and making informed decisions in business and finance. Students will learn how to summarize and visualize data, quantify uncertainty, perform statistical inference, and build predictive models for both continuous and categorical outcomes. Advanced topics include time series forecasting, Monte Carlo simulation, and optimization models for decision making.



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