

Master of Agribusiness Program Jointly with Texas A&M University

COURSE OBJECTIVES AND DESCRIPTION

AGBU 501 – BUSINESS MATHEMATICS

The objective of this course is to introduce the mathematical concepts and applications. The course involves concept understanding, problem formulation and solution, graphing, and computer application. It will be based on high school algebra and geometry. At the end of the course, students will be able to apply their mathematical skills to various business problems for the optimal solutions.

The course will begin with the introduction of basic functions, piece-wise defined functions, break-even analysis, exponential functions, growth and decay, logarithmic functions, introduction to limits, continuity, asymptotes, limit definition of the derivative, simple derivative rule, and marginal analysis. Furthermore, the continuous compound interest, simple derivative of exponential and logarithmic functions, product and quotient rule, chain rule, demand elasticity, graph analysis with the first and second derivatives, curve sketching, and optimization will be introduced in the second section of the course. The antiderivatives (integrals), integration by substitution, Riemann sums, the definition of the integral, fundamental theorem of calculus, average value, area between curves, i.e. consumers' and producers' surplus, and basic introduction to the multivariate functions, partial derivatives, extrema, and regression as an application of the partial derivatives will conclude the course.

AGBU 502 – STATISTICS FOR BUSINESS

The objective of this course is to increase statistical literacy, induce thorough understanding of the basic statistical principles and concepts, data, data massaging, application of the concepts and principles using Excel and specialized statistical software, and induce interpretation of real-world problems from the statistics point of view. The course involves concept understanding, problem formulation and solution, computer application, and statistical inferences. It will be based on college level statistics. At the end of the course, students will be conversant in statistics and able to apply it to various business problems.

The course will begin with the introduction to the types of data and the graphing options, summary statistics including the central tendency, dispersion, and the Chebychev's inequality. Furthermore, the probability distributions will be introduced for both univariate and multivariate cases and for various types of distributions, such as binomial, normal, etc. Based on the probability distributions, the concept of the sampling distribution of the mean, the central limit theory and the application of it will be provided.

Both one-sided and two-sided confidence intervals, types of errors, power, sample size for hypothesis testing, mean comparisons, concept of correlation along with scatter plots will be presented. The simple linear regression, correct formulation, estimation methods, statistical inferences, followed by the model set-up for the multiple regression, indicator variable, various interactions, computation, and statistical inference will be introduced. The course will be completed with the introduction of variance analysis. Additional special topics, such as detailed sampling methodology may be introduced at the end of the course.

AGBU 503 – MANAGERIAL ECONOMICS IN AGRIBUSINESS

Prerequisite: AGBU 501, AGBU 502

The objective of this course is to illustrate how microeconomics can be used for managerial decision making of agribusinesses. Students will be taught how to apply economic analysis to a wide

variety of issues that are fundamental to the success of agribusiness firms. The course involves concept understanding and application of the economics in class discussions. At the end of the course, students will be able to make economically savvy and informed decisions for any agribusiness firm.

The first section of the course is comprised of the introduction to the managerial economics, the uses of it, and real world examples. Furthermore, the concepts of demand and supply, the foundation that they are constructed upon, the factors affecting both supply and demand are introduced. The second section of the course will involve estimation and output interpretation. Specifically, model selection and appropriate demand function for the particular problem will be estimated through the use of econometrics. Similarly, cost and production estimation and proper modeling will be introduced. Interpretation of the output and singling out significant factors and making informed decisions based on the results will be presented as well. The introduction of the imperfect market structures, the extent of firm dominance in the market, survival strategies in competitive markets will complete the last course.

AGBU 504 – ANALYTICAL WRITING

This course introduces effective communication for academic context. Students will explore the rhetorical dimensions of writing typical of these contexts as well as the processes of planning, composing and delivering academic communication to a variety of audiences. Guided practice will help students develop the writing skills needed to be successful in academic communication contexts. Objectives of the course are to introduce students to common academic writing contexts and genres, including research papers, reports, and theses, examine the rhetorical principles underlying the construction and adaptation of information for different audiences, purposes, and genres, introduce the conventions of academic writing, including both the review of existing research and the reporting of original research, develop individual and collaborative research. Also, students will develop drafting, review and revision skills to express ideas effectively by using appropriate sentence structure, grammar, and punctuation.

The course will begin with the introduction of patterns of thought that lead students to question assumptions and opinions, explore the alternative opinions, and anticipate the opposing arguments; also, compare one type of experience to another and identify causes and consequences of ideas and events. Further in the course, all this will hone student abilities to: read as a writer and write as a reader and accurately summarize selections of materials on specific subjects; synthesize different sources by discovering the relationships among them and showing how these relationships produce insights about the subjects under discussion; analyze arguments as well as objects or phenomena by applying particular perspectives and theories; develop effective techniques for discovering using pertinent authoritative information and ideas and presenting the results of work in generally accepted disciplinary formats. This will result in developing effective academic thesis and writing academic essays and research papers.

AGBU 505 – ECONOMETRICS FOR AGRIBUSINESS

Prerequisites: AGBU 501 and AGBU 502

The objective of this course is to integrate the economics and statistics in such a way that economic and business data are analyzed, interpreted and used for further decisions. The course involves econometric theory, its application to the real-world data, analysis, and interpretation. It will rely extensively on basic calculus, statistics, and intermediate micro- and macroeconomics knowledge. Students will engage in computer applications to analyze problems and test various hypotheses. At the end of the course, students will have acquired the necessary quantitative tools for analyzing real-world business problems and recommending further solutions.

The course will start with the introduction of the basic concepts of sampling theory. Specifically, the distinction of experimental and nonexperimental data, types of economic variables, data-generation processes, the concept of expected value and probability density functions will be introduced. Based on these concepts, the economic and statistical models, estimation of the mean and variance of a normal population, and sampling experiments will be provided. The hypothesis testing and statistical inferences in both cases when variance is known and unknown will complete the foundation of estimation and inferences.

The second section of the course will focus on the simple linear statistical model. First of all, the distinction of statistical and economic models will be provided. Then, the specifics of the model, data, and parameter estimations with hands-on practice will follow. The refreshment of matrix algebra and partial and total derivatives will be a major focus for smooth transition to later section of the course. Furthermore, inferences in the simple regression model, such as estimator sampling characteristics and properties, and interval estimation, hypothesis testing, and prediction will be introduced. The section will be completed with the model choice, functional form, interpretation of the computer output, and the overall inferences on the simple linear models.

Lastly, dummy variables, idea of collinearity, heteroskedasticity, autocorrelation and their fixes, discrete choice models, such as logit and probit models, will be presented. Some additional special topics will be briefly presented which are likely to include simultaneous equation models, time series, and/or Bayesian inferences.

AGBU 506 – ACCOUNTING CONCEPTS AND PROCEDURES

The objective of the course is to present accounting concepts and relationships that are essential to administrative decision-making; use of accounting statements and reports as policy-making and policy execution tools. This course will encompass fundamentals of financial accounting. It involves concept understanding, case studies, and class discussions. It will be based on college-level accounting. At the end of the course, students will be able to make accounting reports, analyze the financial statements, and make decisions based on the accounting data.

The first section of the course starts with the common accounting concepts, standards, and the basic accounting principles and assumptions. The financial accounting process which involves transaction analysis, cash, revenue, etc. along with the adjustments produces will be presented. The step-by-step approach of recording will be introduced which includes journal entries, adjusting entries, and after-closing trial balance. Furthermore, the worksheets and adjustments in the accrual system of accounting will complete the first section of the course.

The second section of the course will focus on the components of the financial statements in more details. Specifically, the breakdown of assets and liabilities are introduced: merchandising transactions and inventories, long-term assets, cash, receivables, current liabilities, long-term liabilities and investments. The types of business organizations the accounting process for both unincorporated business organizations and corporations will be laid out. The income determination and earnings, expenses, cash flows, tax considerations will all be used to make financial statements. The course will be completed with the thorough introduction of the financial statement analysis and the ways the financial statements can be used for decision making.

AGBU 507 – MARKETING MANAGEMENT

The objective of this course is to provide students with a broad view of marketing and the role marketing plays in the business world and with a better understanding of marketing concepts, strategies, and tactics in our dynamic, highly competitive global economy. The course involves concept understanding, proposing solutions to real-world problems, projects, class discussions and

case-studies. At the end of the course, students will be able to successfully pursue marketing study and apply the theoretical and applied marketing knowledge to various business problems.

The course will introduce the marketing concept, the marketing environment, social responsibility and ethics specifically focused on Armenia. The global marketing that is based on the interactions of nations will be presented next. The target markets and the concept of market segmentation along with buyer behavior are introduced. The next section of the course includes the product concept, strategy and ways of making the product attractive through packaging and branding. Furthermore, emphasis will be placed on the marketing of the product, particularly the services, supply chain management, wholesaling and distribution. The last section of the course will cover the selling strategies. Specifically, retailing, concept and strategies of pricing will provide insights as to how the product should be marketed. Lastly, special attention is placed on the promotion, modes of marketing communication, public relations and personal selling.

AGBU 508 – ECONOMICS OF UNDERDEVELOPED RURAL AREAS

Prerequisites: AGBU 501, AGBU 502, AGBU 503

The objective of the course is to survey the major issues and models in the development economics largely emphasizing the rural development, project implementation, evaluation, and the interrelationship between the economic and political spheres. Considering the development status of countries, income inequality, and structural changes in government, the class will concentrate on the policies, monitoring, potential solutions and opportunities for countries' development. It involves concept understanding, case studies, class discussions and projects. At the end of the course, students will understand the process of countries' development, the role of sound policies, various solutions for steady growth and development of countries. They also would be able to make reasonable policy analysis and provide recommendations.

The course will start with an introduction of the role of economic development. This encompasses rural development and poverty reduction which are the key points for countries' development. Furthermore, the role of regional and urban settings are important components to fuel socio-economic development and reduction of the urban-rural economic gap. The financing development, trade and markets would be introduced next. Government's role should not be ignored in all these given its importance for devising and implementing policies.

The second half of the class will concentrate on the emergence and evolution of the economic development thought, the implementation plan and implications. Once the thought is well planned and envisioned, thorough evaluation techniques (such as benefit-cost analysis) are applied to ensure its profitability. During the project planning, uncertainty remains an issue. Hence, supervision and monitoring as well as re-evaluation would be introduced given their importance for ensuring continuity and reasonableness of the project. Lastly, students will be introduced with the proper ways of policy analysis and recommendations.

AGBU 591 – PROFESSIONAL INTERNSHIP

The prerequisites of this course are all the core courses of year one. This is a work-study course that provides students with opportunities to apply the concepts they have learnt to real-world problems. The main purpose is to get involved with industry practitioners to better understand the business environment in Armenia.

AGBU 509 – STRATEGIC AGRIBUSINESS MANAGEMENT

Prerequisite: AGBU 503, AGBU 506, and AGBU 507

The objective of this course is to provide students with an understanding of the basic issues and concepts related to the strategic management and teach in detail the most relevant and up to date methodologies and tools to address these issues. Moreover, acquisition of knowledge of all areas of business will be another objective of this course which then will be integrated with the management knowledge to develop a good strategic plan. The course involves concept understanding, application of the concepts in classroom discussions, and business plan. At the end of the course, students are expected to master the necessary knowledge to be able to formulate problems, issues and develop appropriate strategies and implementation plan, i.e. to write a successful strategic plan.

The course will cover the concept of strategy, strategic management, and information on the strategies of maintaining competitiveness in the industry. This quest for competitive advantage involves formulation and strategy execution process, which includes the analysis of the company's external environment, company's resources and competitive position. Based on the analysis, the company will decide which competitive strategy to choose out of the five generic ones, i.e. low cost, differentiation, best-cost, diversification, etc. Competitive dynamics will be analyzed both in terms of the likelihood and the intensity of the response by the rivals. Other options that companies consider include the acquisition and restructuring, such as downsizing or leverage buyouts. The international strategy of staying competitive has become increasingly important. Moreover, the cooperative strategy, such as business-level or corporate-level cooperative strategies are yet another venue commonly used by many businesses.

The strategic implementation is the last main section covered in the course. Special emphasize will be placed on corporate governance, organizational structure and controls, their interactions, strategic leadership, and the corporate entrepreneurship and innovation.

AGBU 510 – FINANCIAL MANAGEMENT

Prerequisites: AGBU 506

The objective of this course is to introduce the students to the world of finance. In the complex business environment thorough knowledge of finance is critically important. Moreover, the recent economic crisis inflicted the need to highly emphasize the risk management techniques. Hence, the course will be a natural blend of both traditional financial management and more specialized risk management techniques. The course involves concept understanding, application of the concepts in class discussion, and a course paper. At the end of the course, students are expected to be conversant in financial concepts, risk concepts, and be able to formulate and provide logical solutions to various business/financial problems.

The course will start with the introduction to financial management, time value of money including many real-world examples. Financial statements are covered next which are then used to make solid analysis. Ratio analysis, common size analysis, trend and benchmarking analysis, along with other non-financial analysis are covered to thoroughly understand performance of a business. The section will be completed with the introduction of the financial markets, tools, institutions, and various interactions that take place.

The second section will focus on the interest rate, its composition, impact of macroeconomic policy on the interest rates. Based on this, the concept of bond will be provided. The relationship between the interest rates and bond prices, companies' vision at the time of bond issuance and various types of bonds, determination of bond prices, and rating agencies will be introduced. Similarly, the concept and types of stocks, the common uses of it, valuation, and transactions will be presented next. Both bonds and stocks and money market tools will be analyzed from risk and return perspective. Basics of the financial derivatives will be provided, which are modern tools of risk management.

The last section of the course will begin with the cost of capital, how it is determined and when to use it. Based on the determined cost of capital, capital budgeting will be provided which includes criteria on choosing the best project and all the necessary calculations that are inherent to the choice. One of the necessary calculations for accurate capital budgeting is the cash flow estimation, the accuracy of which is highly critical for choosing a right project. Once the project is accepted, how to finance it, whether stock should be issued, or bond or simply bank loans are all part of capital structure and leverage analysis. Furthermore, if the company is profitable and earns positive accounting profit, what should it do with the free cash – pay dividends or retain in the business. The reaction of the investors is carefully analyzed before any precise decision is made. Lastly, how the company should manage its working capital to maximize the efficiency and minimize the need for external financing. Lastly, the planning and forecasting will complete the course, which gives a more profound view of future activities.

AGBU 511 – AGRIBUSINESS ANALYSIS AND FORECASTING

Prerequisites: AGBU 505

The objective of this course is to introduce the fundamentals of linear programming, optimization, forecasting, and simulation. The course involves computer application, problem formulation, output interpretation, data generation, as well as decision-making. It will be based on statistical theory, economic theory, econometrics, as well as excel. At the end of the course, students will be able to forecast any economic data, provide solid solutions to reduce risks and uncertainty, give solutions to economic problems applying optimization and linear programming skills.

The course will begin with the optimization and the linear programming section. First, the course will lay out the basics of the optimization problem, the need, and the available methods used to solve such problems. The computer application and specific functions of Excel that are commonly used for solving the optimization problems will be introduced. Once the basics of the optimization and computation methods are introduced, the formulation, set-up of linear programming problem will follow. The various examples of the LP formulation examples, such as risk programming, and output interpretations will complete the first section of the course.

The second section will begin with the introduction to trend analysis, multiple regression, and various methods of forecasting. Specifically, moving average and exponential smoothing as well as time series forecasting will be taught. The last section is focused on simulation and various situations of uncertainty. It includes univariate and multivariate probability distributions, risk and uncertainty, steps to model development, parameter estimation, and validation. Moreover, specific problem formulations, where uncertainty is inherent, are discussed. The problems include model and strategy identification, risk management, sensitivity and scenario analysis, ranking of the risky strategies and probabilistic forecasts. In addition, the cash flow modeling and portfolio analysis will be discussed as well, especially the part that involves huge uncertainty. The project management which includes project feasibility analysis and supply chain management will also be presented. The last section entails application of simulation technique to better understand and interpret the uncertainty around the problems in question.

AGBU 512 – APPLIED AGRIBUSINESS LOGISTICS

Prerequisite: AGBU 505, AGBU 507, AGBU 509, and AGBU 510

The objective of this course is to provide students with an understanding of the business logistics and supply chain, with particular reference in how these function in food and agriculture industries. The course involves concept understanding, logical thought processes, critical evaluation of

business conditions, and communication skills. At the end of the course, students will be able to identify major elements of business logistics and supply chain, evaluate various supply chain strategies, analyze and evaluate various issues in food supply chain management, and evaluate global competitiveness of Armenian food and agriculture industries with the emphasize on logistics and supply chain.

The first half of the course starts with the introduction to the business logistics and the supply chain management. The supply chain coordination, the choice of the optimal strategy, logistics of inventories, transportation, various transportation models, and network designs will complete the first half of the course. Vertical ownership, NGC's, financing the NGC, forming strategic alliances, contracting and agency theory, procurement, and the interaction of information technology and the supply chain will be included in the second part of the course. Further issues in the supply chain, such as quality and food safety, globalization and logistics, and many real-world examples will be incorporated in the last section of the course.

AGBU 513 – FINANCIAL ANALYSIS FOR AGRIBUSINESS FIRMS

Prerequisite: AGBU 506 and AGBU 510

The objective of this course is to provide the students with an understanding of how the finance function supports the strategic goals of agribusiness firms. It will mainly deal with large corporations as well as the privately held companies and agricultural cooperatives that comprise an important part of the agribusiness sector. The course involves case study method of learning, class discussions and team works. At the end of the course, students are expected to be able to use the financial tools that enable firms to gain a sustainable competitive advantage or that signal problems in the firm.

The course will begin with the introduction of financial information and control. It will include financial statements for cooperative businesses and ratio analysis which will provide information about the financial position of enterprises and the performance of the agribusiness firms. Furthermore, working capital management will be introduced to support short-term decisions. The section will be completed with the ethics and credibility of financial statements.

The second section of the course will be concentrated on capital investments under conditions of certainty and uncertainty. In case of uncertainty, traditional methods such as WACC, scenario and sensitivity analysis will be used to determine possible future events by considering alternative possible outcomes and variations. Real option valuation technique will be applied to a variety of investment decisions.

The course will be completed by the introduction of financial intermediation and financial institutions. Information on capital markets, which include stock market and bond market and underline the basics of raising long-term funds, will also be presented. Value at risk measure will be introduced for the portfolio analysis and the course will be completed with the lecture on banks and banking.

AGBU 514 – PROFESSIONAL RETAILING AND CONSUMER BEHAVIOR

Prerequisite: AGBU 507

The objective of this course is two-fold. First, the course will provide students with an understanding of the role of retailing in the current global marketplace, understanding of the competitive environment, ethics issues, sustainability, the role of technologies, consumers and economics in retail strategy, and develop entrepreneurial skills through creation of a unique store format. Second, the course is designed to provide knowledge of psychological foundations of consumer behavior, mechanisms of effective marketing communication that would lead to change in

consumer attitudes, beliefs and actions. The course involves concept understanding, paper, and class discussions. At the end of the course, students are expected to construct a solid retailing strategy that will specifically target consumers with various attitudes and behavior.

The retailing section of the course will start with the introduction to retailing, various types of retailing, multichannel retailing, and retail market strategy. The financial and organizational aspects are presented next with the emphasis on how the retailing strategy will be financed, how the human management will be implemented, the information flow across the supply chain, minimization of the risks and management of the risks, merchandise planning, store management, and layout. All these mentioned topics will improve the retail management and make it more effective.

The second half of the course will be focused on the consumer behavior. Understanding of consumer behavior, their perceptions, factors that influence the consumers' buying behavior will be used to design a more effective brand building strategy. Impact of the group and opinion leadership, attitude change and persuasive communications will be discussed as well. The cultural factor in understanding consumer mind cannot be understated as it is highly important for effectively retailing goods and services and will be presented at the end of the course.

AGBU 515 – ENTREPRENEURSHIP

Prerequisite: AGBU 506, 507, 509, 510

The major focus of this course will be on the role and nature of entrepreneurship as a mechanism for creating new ventures and affecting economic development. To provide an understanding of the Entrepreneur, we will focus on all the elements in the entrepreneurial process that are a part of creating a new venture. The characteristics and background of entrepreneurs will be discussed, as well as some methods for individual self-assessment and the various aspects of international entrepreneurship. Important aspects of the business plan will be then presented, and a chapter is devoted to each of the major components of the business plan: the marketing plan, the financial plan, and the organizational plan.