

Career and Technology Program Guide

Each class listed below will be new in 2010 and 2011. This draft copy of course descriptions will give an idea of the content of the class but actual curriculum and sequencing may be different to some degree.

AGRICULTURE and HORTICULTURE

Principles of Agriculture, Food, and Natural Resources

Entry course for Horticulture and/or Agriculture

Credit: 1.0

Grade placement: 9-12

To be prepared for careers in agriculture, food, and natural resources, students must attain academic skills and knowledge in agriculture. This course allows students to develop knowledge and skills regarding career opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for success, students need to have opportunities to learn, reinforce experience, apply, and transfer their knowledge and skills in a variety of settings.

Small Animal Management

Agriculture Sequence

Grade placement: 10-12

Credit: 0.5

Required prerequisite: Principles of Agriculture, Food & Natural Resources

To be prepared for careers in the field of animal science, students need to enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings. Suggested small animals which may be included in the course of study include, but are not limited to, small mammals, amphibians, reptiles, avian, dogs, and cats.

Equine Science

Agriculture Sequence

Grade placement: 10-12

Credit: 0.5

Required prerequisite: Principles of Agriculture, Food & Natural Resources

To be prepared for careers in the field of animal science, students need to enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. Suggested animals which may be included in the course of study include, but are not limited to, horses, donkeys, and mules.

Principles and Elements of Floral Design

Horticulture Sequence

Grade placement: 10-12

Credit: 1.0

Recommended prerequisite(s): Principles of Agriculture, Food & Natural Resources

To be prepared for careers in floral design, students need to attain academic skills and knowledge as well as technical knowledge and skills related to horticultural systems and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply and transfer their knowledge and skills and technologies in a variety of settings. This course is designed to develop students' ability to identify and demonstrate the principles and techniques related to floral design as well as develop an understanding of the management of floral enterprises. Through the analysis of artistic floral styles and historical periods, students develop respect for the traditions and contributions of diverse cultures. Students respond to and analyze floral designs, thus contributing to the development of lifelong skills of making informed judgments and evaluations

Horticulture Science

Horticulture Sequence

Grade placement: 10 -12

Credit: 1.0

Required prerequisite: Principles and Elements of Floral Design

To be prepared for careers in horticultural systems, students need to attain academic skills and knowledge, acquire technical knowledge and skills related to horticulture and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings. This course is designed to develop an understanding of common horticultural management practices as they relate to food and ornamental plant production.

Practicum in Agriculture, Food, and Natural Resources **Agriculture** or **Horticulture** Sequence

Grade Placement: 11-12

Credits: 2.0

Required Prerequisite: 1.5 credits completed from the courses in the Agriculture or Horticulture Pathway prior to enrollment in the Practicum

The practicum course is a capstone experience for students participating in a coherent sequence of career and technical education courses in the Agriculture, Food, and Natural Resources cluster. The practicum is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories.

MANUFACTURING & CONSTRUCTION

Principles of Architecture and Construction

Entry course to Manufacturing and/or Construction Sequence

Credit: 1.0

Grade Placement: 9-12

Principles of Architecture and Construction provide an overview to the various fields of architecture, interior design, construction science, and construction technology. Achieving proficiency in decision making and problem solving is an essential skill for career planning and lifelong learning. Students use self-knowledge, educational, and career information to set and achieve realistic career and educational goals. Job-specific, skilled training can be provided through the use of training modules to identify career goals in trade and industry areas. Safety and career opportunities are included, in addition to work ethics and job-related study in the classroom such as communications; problem solving and critical thinking; information technology applications; systems; safety, health, and environmental; leadership and teamwork; ethics and legal responsibilities; employability and career development; technical skills; introduction to hand tools; introduction to power tools; basic rigging; and reading technical drawings.

Construction Technology Manufacturing Sequence

Grade Placement: 10-12

Credit: 1.0

Required Prerequisite: Principles of Architecture and Construction

In Construction Technology, students gain knowledge and skills specific to those needed to enter the work force as carpenters or building maintenance supervisors or prepare for a postsecondary degree in construction management, architecture, or engineering. Students acquire knowledge and skills in safety, tool usage, building materials, codes, and framing.

Building Maintenance Technology **Construction Sequence**

Grade Placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Architecture and Construction

In Building Maintenance Technology, students gain knowledge and skills specific to those needed to enter the field of building maintenance as a building maintenance technician or supervisor or secure a foundation for a postsecondary degree in construction management, architecture, or engineering. Students acquire knowledge and skills in plumbing, electrical, and Heating, Ventilation, and Air Conditioning (HVAC) systems. Additionally, students learn methods for repair and installation of drywall, roof, and insulation systems.

Career Prep in Construction **Construction Sequence**

Grade placement: 11 – 12

Credit: 3.0

Required prerequisite: 1.5 credits completed from the courses in the Manufacturing, Construction, Business or Marketing Pathways prior to enrollment in Career Prep. All three semesters must be in the same pathway. Students in Lamar's Business Administration Magnet program are not eligible for Career Prep.

Through course required employment, students gain knowledge and skills that help them become proficient in one or more of the construction areas. The practicum is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. The practicum course is a paid experience for students participating in a coherent sequence of career and technical education courses in construction technology.

JOURNALISM

Principles of Arts, Audio/Video Technology, and Communications

Entry course for **Newspaper**, **Yearbook** and/or **Broadcast Journalism**

Grade placement: 9 - 11

Careers in the Arts, Audio/Video Technology, and Communications career cluster require, in addition to creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

Digital and Interactive Media **Broadcast Journalism Sequence 2**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Through the study of digital and interactive media and its application in information technology, students will analyze and assess current and emerging technologies, while designing and creating multimedia projects that address customer needs and resolve a problem. Students implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. The knowledge and skills acquired and practiced will enable students to successfully perform and interact in a technology-driven society. Students enhance reading, writing, computing, communication, and critical thinking and apply them to the information technology environment.

Graphic Design and Illustration **Broadcast Journalism Sequence 3**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Careers in graphic design and illustration span all aspects of the advertising and visual communications industries. Within this context, in addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications career cluster, students will be expected to develop an understanding of the industry with a focus on fundamental elements and principles of visual art and design.

Audio/Video Production **Broadcast Journalism Sequence 4**

Grade placement: 11 – 12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Careers in audio and video technology and film production span all aspects of the audio/video communications industry. In addition to developing technical knowledge and skills, students will be expected to develop an understanding of the industry with a focus on pre-production, production, and post-production audio and video activities.

Commercial Photography **Newspaper or Yearbook Sequence 2**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Careers in commercial photography require skills that span all aspects of the industry from setting up a shot to delivering products in a competitive market. Students will be expected to develop an understanding of the commercial photography industry with a focus on creating quality photographs.

Printing and Imaging Technology Newspaper or Yearbook Sequence 3

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Careers in printing span all aspects of the industry, including prepress, press, and finishing and bindery operations. Within this context, in addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications career cluster, students will be expected to develop an understanding of the printing industry with a focus on prepress and desktop publishing.

Professional Communications Newspaper or Yearbook Sequence 4

Grade placement: 11 -12

Credit: 1.0

Required prerequisite: Principles of Arts, Audio/Video Technology, and Communications

Professional Communications blends written, oral, and graphic communication in a career-based environment. Careers in the global economy require individuals to be creative and have a strong background in computer and technology applications, a strong and solid academic foundation, and a proficiency in professional oral and written communication. Within this context, students will be expected to develop and expand the ability to write, read, edit, speak, listen, apply software applications, manipulate computer graphics, and conduct Internet research.

BUSINESS ADMINISTRATION MAGNET

Principles of Business, Marketing, and Finance

Entry course for Business Administration Magnet Sequence

Credit: 1.0

Grade placement: 9-11

In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems and settings in business, marketing, and finance.

Business Information Management I **Magnet Sequence 2**

Grade placement: 10 -12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.

Global Business **Magnet Sequence**

Grade placement: 11 -12

Credit: 0.5

Required prerequisite: Principles of Business Management & Administration

Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce and postsecondary education. Students apply technical skills to address global business applications of emerging technologies. Students develop a foundation in the economical, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students enhance reading, writing, computing, communication, and reasoning skills and apply them to the business environment.

Money Matters **Magnet Sequence**

Grade placement: 11 -12

Credit: 0.5

Required prerequisite: Principles of Business, Marketing, and Finance

Students will investigate global economics with emphasis on the free enterprise system and its impact on consumers and businesses. Students apply critical-thinking skills to analyze financial options based on current and projected economic factors. Students will gain knowledge and skills necessary to set long-term financial goals based on those options. Students will determine methods of achieving long-term financial goals through investment, tax planning, asset allocation, risk management, retirement planning, and estate planning.

Accounting I **Magnet Sequence**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students investigate the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students reflect on this knowledge as they engage in the process of recording, classifying, summarizing, analyzing, and communicating accounting information. Students formulate and interpret financial information for use in management decision making.

Accounting II **Magnet Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I

Students continue the investigation of the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students reflect on this knowledge as they engage in various managerial and cost accounting activities. Students formulate and interpret financial information for use in management decision making.

Financial Analysis **Magnet Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I

Students apply technical skills to develop knowledge and skills in the economical, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students develop analytical skills by actively evaluating financial results of multiple businesses, interpreting results for stakeholders, and presenting strategic recommendations for performance improvement.

Statistics and Risk Management **Magnet Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I Recommended prerequisite: Algebra II

Students will use a variety of graphical and numerical techniques to analyze patterns and departures from patterns to identify and manage risk that could impact an organization. Students will use probability as a tool for anticipating and forecasting data within business models to make decisions. Students will determine the appropriateness of methods used to collect data to ensure conclusions are valid.

MARKETING

Principles of Business, Marketing, and Finance

Entry course for **Marketing Sequence**

Credit: 1.0

Grade placement: 9-11

In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems and settings in business, marketing, and finance.

Sports and Entertainment Marketing **Marketing Sequence 2**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

This course will provide students with a thorough understanding of the marketing concepts and theories that apply to sports and sporting events and entertainment. The areas this course will cover include basic marketing, target marketing and segmentation, sponsorship, event marketing, promotions, sponsorship proposals, and implementation of sports and entertainment marketing plans. This course will also provide students an opportunity to develop promotional plans, sponsorship proposals, endorsement contracts, sports and entertainment marketing plans, and evaluation and management techniques.

Retailing and E-tailing **Marketing Sequence**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students will have the opportunity to develop skills that involve electronic media techniques necessary for a business to compete in a global economy. Students will coordinate online and off-line marketing. Students will demonstrate critical-thinking skills using decision-making models, case studies, various technologies, and business scenarios.

Career Prep in Marketing Dynamics **Marketing Sequence**

Grade placement: 11 – 12

Credit: 3.0

Required prerequisite: 1.5 credits completed from the courses in the Business or Marketing Pathways prior to enrollment in Career Prep. Students in Lamar's Business Administration Magnet Program are not eligible for Career Prep.

Through course required employment, students gain knowledge and skills that help them become proficient in one or more of the marketing functional areas. Students will illustrate appropriate management and research skills to create the marketing mix. This course covers technology, communication, and customer-service skills. The practicum is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. The practicum course is a paid experience for students participating in a coherent sequence of career and technical education courses in marketing education.

BUSINESS

Principles of Business, Marketing, and Finance

Entry course for **Business Sequence**

Grade placement: 9-11

Credit: 1.0

In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems and settings in business, marketing, and finance.

Business Information Management I

Business Sequence 2

Grade placement: 10 -12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.

Business Information Management II **Business Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Business Information Management I

Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce or postsecondary education. Students apply technical skills to address business applications of emerging technologies, create complex word-processing documents, develop sophisticated spreadsheets using charts and graphs, and make an electronic presentation using appropriate multimedia software.

Entrepreneurship **Business Sequence**

Grade placement: 11 -12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students will gain the knowledge and skills needed to become an entrepreneur. Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services. In addition, students understand the capital required, the return on investment desired, and the potential for profit.

Accounting I **Business Sequence**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Principles of Business, Marketing, and Finance

Students investigate the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students reflect on this knowledge as they engage in the process of recording, classifying, summarizing, analyzing, and communicating accounting information. Students formulate and interpret financial information for use in management decision making.

Accounting II **Business Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I

Students continue the investigation of the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students reflect on this knowledge as they engage in various managerial and cost accounting activities. Students formulate and interpret financial information for use in management decision making.

Financial Analysis **Business Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I

Students apply technical skills to develop knowledge and skills in the economical, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students develop analytical skills by actively evaluating financial results of multiple businesses, interpreting results for stakeholders, and presenting strategic recommendations for performance improvement.

Statistics and Risk Management **Business Sequence**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Accounting I Recommended prerequisite: Algebra II

Students will use a variety of graphical and numerical techniques to analyze patterns and departures from patterns to identify and manage risk that could impact an organization. Students will use probability as a tool for anticipating and forecasting data within business models to make decisions and determine the appropriateness of methods used to collect data to ensure conclusions are valid.

CULINARY ARTS

Principles of Hospitality and Tourism **Culinary Arts Sequence**

Entry course for Culinary Arts Sequence

Credit: 1.0

Grade placement: 9-11

The hospitality and tourism industry encompasses lodging; travel and tourism; recreation, amusements, attractions, and resorts; and restaurants and food beverage service. The hospitality and tourism industry maintains the largest national employment base in the private sector. Students use knowledge and skills that meet industry standards to function effectively in various positions within this multifaceted industry. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

Restaurant Management Culinary Arts Sequence 2

Grade placement 10-12

Credit: 1.0

Required prerequisite: Principles of Hospitality and Tourism

This course will emphasize the principles of planning, organizing, staffing, directing, and controlling the management of a variety of food service operations. The course will provide insight into the operation of a well-run restaurant. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

Culinary Arts Culinary Arts Sequence 3

Grade placement: 10-12

Credit: 1.0

Required prerequisites: Restaurant Management and Teacher Approval

Culinary Arts begins with the fundamentals and principles of the art of cooking and the science of baking and includes management and production skills and techniques.

Practicum in Culinary Arts Culinary Arts Sequence 4

Grade placement: 11-12

Credits: 2.0

Required prerequisites: Culinary Arts and Teacher Approval

This course is a two period block that provides occupationally specific opportunities for students participating in a unique learning experience. Students in Practicum for Culinary Arts will learn marketable business, catering and technical culinary skills in Lamar's *Café M*. Many Lamar graduates of the Culinary Arts Pathway have been accepted in prestigious culinary academies. The Culinary Institute of America has recognized that students who complete the 4 year program at *Café M* have enough practical experience to meet the admission requirement of outside work experience that is required prior to application in this premier institution.

ENGINEERING AND ROBOTICS

Concepts of Engineering and Technology

Entry course for **Engineering and Robotics**

Grade placement: 9-10

Credit: 1.0

Concepts of Engineering and Technology provide an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will use a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will have an understanding of the various fields and will be able to make informed decisions regarding a coherent sequence of subsequent courses. Further, students will have worked on a design team to develop a product or system. Students will use multiple software applications to prepare and present course assignments.

Engineering Design and Presentation **Engineering and Robotics 2**

Grade placement: 10-12

Credit: 1.0

Required prerequisite: Concepts of Engineering and Technology

Students enrolled in this course will demonstrate knowledge and skills of the process of design as it applies to engineering fields using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students will use a variety of computer hardware and software applications to complete assignments and projects. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas.

Principles of Technology **Engineering and Robotics 3**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Concepts of Engineering and Technology

In Principles of Technology, students conduct field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Various systems will be described in terms of space, time, energy, and matter. Students will study a variety of topics that include laws of motion, conservation of energy, momentum, electricity, magnetism, thermodynamics, and characteristics and behavior of waves.

Robotics and Automation **Engineering and Robotics 4**

Grade placement: 11-12

Credit: 1.0

Required prerequisite: Concepts of Engineering and Technology

Students enrolled in this course will demonstrate knowledge and skills necessary for the robotic and automation industry. Through implementation of the design process, students will transfer advanced academic skills to component designs in a project-based environment. Students will build prototypes or use simulation software to test their designs. Additionally, students explore career opportunities, employer expectations, and educational needs in the robotic and automation industry.

Advanced Mathematical Decision Making

Grade placement: 11-12

Credit: 1.0 Meets 4th mathematics graduation requirement when taken after Algebra II

Required prerequisite: Algebra II

Students continue to build upon algebra and geometry foundations and expand their understanding through further mathematical experiences. The primary focal points of Advanced Mathematical Decision Making include the analysis of information using statistical methods and probability, modeling change and mathematical relationships, mathematical decision making in finance and society, and spatial and geometric modeling for decision making. In Advanced Mathematical Decision Making, students will learn to become critical consumers of the quantitative data that surround them every day, knowledgeable decision makers who use logical reasoning, and mathematical thinkers who can use their quantitative skills to solve problems related to a wide range of situations. As students do mathematics, they continually rely on mathematical processes, including problem-solving techniques, appropriate mathematical language and communication skills, connections within and outside mathematics, and reasoning. Students also use multiple representations, technology, applications and modeling, and numerical fluency in problem-solving contexts.