

## Course Description

### Mathematics and Science Courses

#### **PAB101 Preparatory Algebra for Business I (3 credits)**

This course reviews and develops basic and intermediate Algebra skills. The primary learning outcome for this course is quantitative reasoning, which will require students to read and analyze data, develop mathematical models, draw inferences, and support conclusions based on mathematical reasoning. A graphical approach will be utilized throughout the course with an emphasis on solving application problems. Topics include properties of exponents, algebraic expressions, polynomials, functions, the graphs of functions, linear functions, linear equations, and systems of linear equations.

**Prerequisite: None**

**Co-requisite: None**

#### **PAB112 Preparatory Algebra for Business II (3 credits)**

This course reviews and develops basic and intermediate Algebra skills. The primary learning outcome for this course is quantitative reasoning, which will require students to read and analyze data, develop mathematical models, draw inferences, and support conclusions based on mathematical reasoning. A graphical approach will be utilized throughout the course with an emphasis on solving application problems. Topics include rational expressions, radical expressions, quadratic functions, exponential functions, logarithmic functions, graphs of functions and equations (rational, radical, quadratic, exponential and logarithmic).

**Prerequisite: PAB101**

**Co-requisite: None**

#### **PAM101 Preparatory Algebra for Medicine (3 credits)**

This course reviews and develops basic and intermediate Algebra skills. The primary general learning outcome for this course is quantitative reasoning, which will require students to read and analyze data, develop mathematical models, draw inferences, and support conclusions based on mathematical reasoning. A graphical approach will be utilized throughout the course with an emphasis on solving application problems. Topics include properties of exponents, algebraic expressions, polynomials, functions, the graphs of functions, linear functions, linear equations, systems of linear equations, rational expressions, radical expressions, quadratic functions, exponential functions, logarithmic functions, graphs of functions and equations (rational, radical, quadratic, exponential and logarithmic).

**Prerequisite: None**

**Co-requisite: None**

**PPC101 Preparatory Pre-Calculus for Engineering and Science I (3 credits)**

This course reviews and develops intermediate and advanced Algebra skills. The primary learning outcome for this course is quantitative reasoning, which will require students to read and analyze data, develop mathematical models, draw inferences, and support conclusions based on mathematical reasoning. A graphical approach will be utilized throughout the course with an emphasis on solving application problems. Topics include algebraic expressions, mathematical models, polynomials, functions, graphs of functions, systems of linear and non-linear equations and equations (linear, absolute value, quadratic, polynomial, rational and radical).

**Prerequisite: None**

**Co-requisite: None**

**PPC112 Preparatory Pre-Calculus for Engineering and Science II (3 credits)**

This course reviews and develops intermediate and advanced Algebra skills. The primary learning outcome for this course is quantitative reasoning, which will require students to read and analyze data, develop mathematical models, draw inferences, and support conclusions based on mathematical reasoning. A graphical approach will be utilized throughout the course with an emphasis on solving application problems. Topics include exponential functions, logarithmic functions, and trigonometric functions, analytic trigonometry, polar coordinates, and graphs of polar equations.

**Prerequisite: PPC101**

**Co-requisite: None**

**PCS112 Basic Computer Skills (3 credits)**

This course is an introduction to computer terminology in terms of hardware, and software related to the business environment. Students will be introduced to the practical computer skills necessary for data and information analysis and an efficient representation of results. Techniques including word processing spreadsheets, databases, desktop publishing, presentation graphics, and business-oriented utilization of the internet will be covered.

**Prerequisite: None**

**Co-requisite: None**

**PBS 112 Business Statistics (3 credits)**

This course of Statistics is the collection, display, and analysis of data; it is the art of making wise decisions in the face of uncertainty. The purpose of this course is to introduce students to how to think critically about data—how it was collected and analyzed—and its uses in addressing relevant questions. Basic statistical concepts and methods are presented in a manner that emphasizes understanding the principles of data collection and analysis rather than theory. There is an emphasis on statistical terminology and the use of Microsoft Excel for applications of data analysis and presentation.

**Prerequisite: PAB101**

**Co-requisite: None**

**PHSF101 Preparatory Human Structure and Function I (4 credits)**

The field of medical science and medical education has accumulated vast amounts of information about human systems biology including anatomy, physiology, and molecular medicine (biochemistry, immunology, microbiology etc.). This course will concentrate on different organ systems that make up the human organism, understanding physiological processes and concepts. The laboratory section of the course is designed to augment the lectures by providing demonstrations and hands-on experimental learning. Topics include cells, body tissues, skin, the skeletal system, the muscular system, the nervous system, the endocrine system, blood, and the gastrointestinal tract.

**Prerequisite: None**

**Co-requisite: None**

**PHSF112 Preparatory Human Structure and Function II (4 credits)**

The field of medical science and medical education has accumulated vast amounts of information about human systems biology including anatomy, physiology, and molecular medicine (biochemistry, immunology, microbiology etc.). This course will concentrate on different organ systems that make up the human organism, understanding physiological processes and concepts. The laboratory section of the course is designed to augment the lectures by providing demonstrations and hands-on experimental learning. Topics include the cardiovascular system, the lymphatic system, immunity, the respiratory system, the digestive system, the urinary system, and the reproductive system.

**Prerequisite: PHSF101**

**Co-requisite: None**

**PPHYM112 Preparatory Physics for Medicine (3 credits)**

This course is designed to give students a solid foundation in basic physics, as it relates to the human body, in preparation for undergraduate studies. The covered material will include the basics of mechanics, thermodynamics, electricity and electromagnetism, and modern physics covering basic concepts of quantum physics, atomic nucleus, and radioactivity.

**Prerequisite: PAM101**

**Co-requisite: None**

**PPHYE101 Preparatory Physics for Engineering and Science I (3 credits)**

This course is designed to give students a solid foundation in basic physics in preparation for undergraduate studies. The course includes a mandatory laboratory that includes a set of experiments that run parallel to the theoretical materials covered in class. Topics include Newtonian mechanics, the physical concepts of force and motion, energy, energy transformation, conservation laws.

**Prerequisite: None**

**Co-requisite: PPC101**

**PPHYE112 Preparatory Physics for Engineering and Science II (3 credits)**

This course is designed to give students a solid foundation in basic physics as preparation for undergraduate studies. The course includes a mandatory laboratory that includes a set of experiments that run parallel to the theoretical materials covered in class. Topics include the basics of electrostatics, simple circuits, magnetism, electromagnetic waves, and the electromagnetic spectrum.

**Prerequisite: PPC101 and PPHYE101**

**Co-requisite: None**

**PCHE101 Preparatory Chemistry I (3 credits)**

This course is designed to give students a solid foundation in basic chemistry as preparation for undergraduate studies. Students will learn of the central role of chemistry in science, the history and development of simple models used to describe the material world, with an emphasis on the structure of matter at the atomic and molecular level. Students will learn how major classes of compounds, with characteristic properties, can be identified by gaining an appreciation of how different atoms interact with each other. They will understand that structure determines physical and chemical properties. They will understand different types of chemical bonds; covalent, metallic, and ionic bonds. They will also learn the structure of organic compounds and their relative properties depending on the functional groups.

**Prerequisite: None**

**Co-requisite: None**

**PCHE112 Preparatory Chemistry II (3 credits)**

This course is designed to give students a solid foundation in basic chemistry as preparation for undergraduate studies. Students will learn the arithmetic of chemical equations and to carry out calculations using balanced equations. They will apply kinetic theory to gases to explain their properties. Students will explore the gas laws experimentally and use these laws to carry out calculations. They will understand the thermochemical reactions and how to calculate the energy released or absorbed during a chemical change. The properties of acids and bases will be discussed along with measurement and calculation of pH. A basic appreciation of buffer action will be attained. Oxidation and reduction will be defined and reactions involving these processes will be carried out and their balanced equations deduced. Electrochemical reactions and electrochemical equations will be introduced to the students with the emphasis on the importance of the different applications of electrochemical reactions such as batteries, fuel cells and electrolytic cells.

**Prerequisite: PCH101**

**Co-requisite: None**

**PBIO112 Preparatory Biochemistry****(3 credits)**

This introductory course is designed to provide a solid foundation in basic biochemistry for premedical students and students entering the allied health sciences. The course begins with a brief survey of the principles of organic chemistry including functional groups, acidity, basicity, stereochemistry, and chirality of organic molecules. This is followed by a comprehensive survey of biochemistry with emphasis on the structure and function of biomolecules including carbohydrates, lipids, proteins, enzymes, neurotransmitters, hormones, and nucleotides. The course also introduces metabolic pathways and bioenergetics.

**Prerequisite: PCHE101****Co-requisite: None****PBUS101 Introduction to Business****(4 credits)**

This course provides students with the basic theoretical and practical skills needed to undertake business studies at the undergraduate level. It achieves this feat by introducing students to the contemporary business world, entrepreneurship, the business of managing, strategy, people in organizations, the principles of marketing, and accounting & finance. The course consists of textbook readings, lectures, interactive in-class discussions, and analyses of contemporary events relevant to business. Special attention is given to both the Saudi and U.S. business contexts.

**Prerequisite: None****Co-requisite: None****PIE112 Introduction to Engineering Innovation****(3 credits)**

Engineering Innovation is an exciting AUPP course for motivated students with an aptitude in math and science and an interest in engineering. In this course students will learn how to think like an engineer and develop the necessary problem-solving skills. The course will provide students with a hands-on experiential learning experience that provides working knowledge of contemporary engineering practice, the problem-solving process, and the tools and technologies engineers employ; as well as an understanding of the design process including competition, cost, quality, scheduling, and manufacturability considerations. Numerous topics in various engineering disciplines will be covered with inspiring presentations, guest-speakers, team projects, and hands-on activities.

**Prerequisite: None****Co-requisite: None****PLAW 101 Preparatory Law and Society I****(3 credits)**

This 3-credit hour semester course is designed to provide AUPP law-pathway students with a comprehensive overview of law and the social order which it seeks to regulate.

**Prerequisite: None****Co-requisite: None****PLAW 112 Preparatory Law and Society II****(3 credits)**

This 3-credit hour semester course is designed to introduce AUPP law-pathway students to law as a social phenomenon through disciplinary themes that include law and culture, social control, economy and politics, and rule of law. Upon successful completion of the course, students will be able to identify the diverse lawmaking systems both within Saudi Arabia and

around the world. Moreover, students will be able to compare major theoretical approaches to the study of law as pertains to how it operates within the society that it seeks to regulate.

**Prerequisite: PLAW 101**

**Co-requisite: None**

**PLR 112      Introduction to Legal Writing**

**(3 credits)**

This 3-credit hour semester course is designed to provide preparatory law-pathway students with the basic legal writing skills needed for the study of law. Utilizing proven methodology, and by providing ample opportunities for development, students will develop both their skills in legal writing as well as their technique in legal analysis.

**Prerequisite: None**

**Co-requisite: None**

## English Courses

### **PENG 001 Preparatory English Level 1**

**(4 credits)**

PENG 001 is a 4-credit hour course that meets for 14 contact hours per week quarterly within the semester, i.e., over 8 consecutive weeks. The course aims to develop the four language skills: listening, speaking, reading, and writing. Reading skills will include understanding main ideas, supporting details, and making inferences. Writing skills will include understanding the structure and features of a well-written paragraph, i.e., the topic sentence as well as supporting and concluding sentences. Listening and speaking skills will include understanding academic lectures within diverse disciplines, i.e., the main concepts and their supporting facts. Additionally, students will acquire note-taking strategies to organize and synthesize the concepts and knowledge delivered in pathway lectures for assessment preparation.

**Prerequisite: Minimum accepted score on an approved placement exam.**

**Co-requisite: None**

### **PENG 002 Preparatory English Level 2**

**(4 credits)**

PENG 002 is a 4-credit hour course that meets for 14 contact hours per week quarterly within the semester, i.e., over 8 consecutive weeks. The course aims to further the development of the four language skills: listening, speaking, reading, and writing. The reading component is focused on improving reading comprehension utilizing context clues and making both explicit and implicit inferences based on the text read. The writing component is focused on extending students' ability to summarize and to paraphrase the content read as well as to respond to it in clear, coherent, and well-organized text utilizing varied rhetorical modes and writing formats. Furthermore, students will develop their descriptive, process, and compare/contrast writing skills. Listening and speaking skills will include students' furthering their understanding of academic lectures within diverse disciplines, i.e., the main concepts and their supporting facts to actively participate in class discussions. Additionally, students will continue to improve upon their note-taking strategies to organize and synthesize the concepts and knowledge delivered in pathway lectures for assessment preparation.

**Prerequisite: PENG 001 or minimum accepted score on an approved placement exam.**

**Co-requisite: None.**

### **PENG 003 Preparatory English Level 3**

**(4 credits)**

PENG 003 is a 4-credit hour course that meets for 14 contact hours per week quarterly within the semester, i.e., over 8 consecutive weeks. While continued development of the four language skills is maintained throughout the course, i.e., listening, speaking, reading, and writing: emphasis is on reading comprehension and writing skills. The reading component centers on extending students' ability to interact with the written word, to reflect upon, analyze, synthesize, and to critically evaluate information from a variety of textual forms. The writing component centers on extending students' ability to express themselves in clear, well-organized, and coherent text in response to text read. The listening and speaking component focuses on developing students' ability to speak clearly and confidently on a specific subject to an audience as well as to conduct a Q & A post presentation.

**Prerequisite: PENG 002 or minimum accepted score on an approved placement exam.**

**Co-requisite: None**

**PENG 004 Preparatory English Level 4 (4 credits)**

PENG 004 is a 4-credit hour course that meets for 14 contact hours per week quarterly within the semester, i.e., over 8 consecutive weeks. This course is designed to improve students' critical reading and higher order thinking skills; whereby, they increase their analytical, inferential, and evaluative reading comprehension to employ effective study strategies for use across academic disciplines. Students will gain exposure to a wide range of texts (pathway-related texts, essays, articles, professional journals, and literature) that will provide the basis for their essay writing as well throughout the course. Additionally, academic writing conventions are employed within the writing component as students are expected to incorporate basic citations in their writing to avoid plagiarism. The focus of the listening and speaking component centers on the retention and analysis of information based on the students' ability to engage in impromptu verbal discourse.

**Prerequisite: PENG 003 or acceptable minimum score on an accepted placement exam.**

**Co-requisite: None**

**PSCS 101 Study and Communication Skills (2 credits)**

Course instruction will incorporate study skills, research skills, tech skills, and application of team and interpersonal communication skills to create effective written discourse as well as oral presentations. In turn, achievement of these skill objectives will facilitate the research, assessment preparation, and communication process as utilized by all AUPP pathway students.

**Prerequisite: None**

**Co-requisite: None**

**PTECH 101 Preparatory Technical Writing I (3 credits)**

This is a 3-credit hour semester course that serves as a prerequisite for Preparatory Technical Writing II, i.e., PTECH 112. In this course, students will develop their academic reading and writing skills, conduct research, and review literature. Students will learn to research a topic by identifying, summarizing, analyzing, and evaluating relevant sources to present arguments based on their findings.

**Prerequisite: None**

**Co-requisite: None**

**PTECH 112 Preparatory Technical Writing II (3 credits)**

This is a 3-credit hour semester course writing-intensive course; whereby, students will further development of their academic reading and writing skills, conduct research, review literature, and write with in-text citations and references. Students will identify, summarize, analyze, synthesize, and evaluate relevant sources for both written and spoken discourse.

**Prerequisite: PTECH 101**

**Co-requisite: None**