

## SCIENCE, MATH, TECHNOLOGY TRANSFER CLASSES APPROVED FOR QUALIFYING HIGH SCHOOL STUDENTS

### **ACC 120 Principles of Financial Accounting**

Prerequisites: 80 on Accuplacer Reading Test

This course introduces business decision-making accounting information systems. Emphasis is placed on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making and address ethical considerations.

### **ACC 121 Principles of Managerial Accounting**

Prerequisites: A grade of "C" or better in ACC 120

This course includes a greater emphasis on managerial and cost accounting skills. Emphasis is placed on managerial accounting concepts for external and internal analysis, reporting and decision-making. Upon completion, students should be able to analyze and interpret transactions relating to managerial concepts including product-costing systems.

### **BIO 110 Principles of Biology**

Prerequisites: 80 on Accuplacer Reading Test

This course provides a survey of fundamental biological principles for non-science majors. Emphasis is placed on basic chemistry, cell biology, metabolism, genetics, taxonomy, evolution, ecology, diversity, and other related topics. Upon completion, students should be able to demonstrate increased knowledge and better understanding of biology as it applies to everyday life.

### **BIO 111 General Biology I**

Prerequisites: 80 on Accuplacer Reading Test

This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels.

### **BIO 112 General Biology II**

Prerequisites: BIO 111

This course is a continuation of BIO 111. Emphasis is placed on organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels.

### **BIO 140 Environmental Biology**

Prerequisites: HS Principal Recommendation

This course introduces environmental processes and the influence of human activities upon them. Topics include ecological concepts, population growth, natural resources, and a focus on current environmental problems from scientific, social, political, and economic perspectives. Upon completion, students should be able to demonstrate an understanding of environmental interrelationships and of contemporary environmental issues.

### **BIO 140A Environmental Biology Lab**

Prerequisites: 80 on Accuplacer Reading Test

Corequisites: BIO 140

This course provides a laboratory component to complement BIO 140. Emphasis is placed on laboratory and field experience. Upon completion, students should be able to demonstrate a practical understanding of environmental interrelationships and of contemporary environmental issues.

### **BIO 150 Genetics in Human Affairs**

Prerequisites: BIO 110 or BIO 111

This course describes the importance of genetics in everyday life. Topics include the role of genetics in human development, birth defects, cancer and chemical exposure, and current issues including genetic engineering and fertilization methods. Upon completion, students should be able to understand the relationship of genetics to society today and its possible influence on our future.

### **BIO 163 Basic Anatomy & Physiology**

Prerequisites: 80 on Accuplacer Reading Test

This course provides a basic study of the structure and function of the human body. Topics include a basic study of the body systems as well as an introduction to homeostasis, cells, tissues, nutrition, acid-base balance, and electrolytes. Upon completion, students should be able to demonstrate a basic understanding of the fundamental principles of anatomy and physiology and their interrelationships.

### **BIO 168 Anatomy and Physiology I**

Prerequisites: 80 on Accuplacer Reading

This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology, histology, and the integumentary, skeletal, muscular, and nervous systems and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships.

### **BIO 169 Anatomy and Physiology II**

Prerequisites: BIO 168

This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as

well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships.

### **BIO 175 General Microbiology**

Prerequisites: BIO 110 or BIO 111 or BIO 163 or BIO 165 or BIO 168

This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques.

### **BUS 115 Business Law I**

Prerequisites: 80 on Accuplacer Reading

This course introduces the ethics and legal framework of business. Emphasis is placed on contracts, negotiable instruments, Uniform Commercial Code, and the working of the court systems. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations.

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### **CHM 131 Introduction to Chemistry**

Prerequisites: 55 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields.

### **CHM 131A Introduction to Chemistry Lab**

Prerequisites: 55 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

Corequisites: CHM 131

This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131.

### **CHM 151 General Chemistry I**

Prerequisites: 75 on Elementary Algebra  
55 on Arithmetic  
80 on Reading

This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152.

### **CHM 152 General Chemistry II**

Prerequisites: CHM 151

This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields.

### **CIS 110 Introduction to Computers**

Prerequisites: 55 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

This course introduces computer concepts, including fundamental functions and operations of the computer. Topics include identification of hardware components, basic computer operations, security issues, and use of software applications. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems.

### **CIS 115 Intro to Prog & Logic**

Prerequisites: CIS 110

This course introduces computer programming and problem solving in a structured program logic environment. Topics include language syntax, data types, program organization, problem solving methods, algorithm design, and logic control structures. Upon completion,

students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language.

### **CJC 111 Introduction to Criminal Justice**

Prerequisites: 80 on Accuplacer Reading

This course introduces the components and processes of the criminal justice system. Topics include history, structure, functions, and philosophy of the criminal justice system and their relationship to life in our society. Upon completion, students should be able to define and describe the major system components and their interrelationships and evaluate career options.

### **CJC 121 Law Enforcement Operations**

Prerequisites: 80 on Accuplacer Reading

This course introduces fundamental law enforcement operations. Topics include the contemporary evolution of law enforcement operations and related issues. Upon completion, students should be able to explain theories, practices, and issues related to law enforcement operations.

### **CJC 141 Corrections**

Prerequisites: 80 on Accuplacer Reading

This course covers the history, major philosophies, components, and current practices and problems of the field of corrections. Topics include historical evolution, functions of the various components, alternatives to incarceration, treatment programs, inmate control, and other related topics. Upon completion, students should be able to explain the various components, processes, and functions of the correctional system.

### **CSC 151 JAVA Programming**

Prerequisites: None

Corequisites: CIS 110

This course introduces computer programming using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion students should be able to design, code, test, debug JAVA language programs.

### **CTS 115 Info Sys Business Concepts**

Prerequisites: None

Corequisites: None<sup>2</sup> 2 3

The course introduces the role of IT in managing business processes and the need for business process and IT alignment. Emphasis is placed on industry need for understanding business challenges and developing/managing information systems to contribute to the decision making process based on these challenges. Upon completion, students should be able to demonstrate knowledge of the 'hybrid business manager' and the potential offered by new technology and systems

### **GEL 113 Historical Geology**

Prerequisites: GEL 111 or GEL 120

This course covers the geological history of the earth and its life forms. Emphasis is placed on the study of rock strata, fossil groups, and geological time. Upon completion, students should be able to identify major fossil groups and associated rock strata and approximate ages of geological formations.

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### **GEL 120**

#### **Physical Geology**

Prerequisites: HS Principal Recommendation

This course provides a study of the structure and composition of the earth's crust. Emphasis is placed on weathering, erosional and depositional processes, mountain building forces, rocks and minerals, and structural changes. Upon completion, students should be able to explain the structure, composition, and formation of the earth's crust.

### **MAT 140**

#### **Survey of Mathematics**

Prerequisites: 55 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

Corequisites: MAT 140A

This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently.

### **MAT 140A**

#### **Survey of Mathematics Lab**

Prerequisites: 55 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

Corequisites: MAT 140

This course is a laboratory for MAT 140. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 141**

#### **Mathematical Concepts I**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 141A

This course is the first of a two-course sequence that develops a deeper understanding and appreciation of the basic concepts of mathematics. Emphasis is placed on sets, logic, number bases, elementary number theory, introductory algebra, measurement including metrics, and problem solving. Upon completion, students should be able to communicate orally and in writing these basic mathematical concepts.

### **MAT 141A**

#### **Mathematical Concepts I Lab**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 141

This course is a laboratory for MAT 141. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 155**

#### **Statistical Analysis**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

Corequisites: MAT 155A

This course is an introduction to descriptive and inferential statistics. Topics include sampling, distributions, plotting data, central

tendency, dispersion, Central Limits Theorem, confidence intervals, hypothesis testing, correlations, regressions, and multinomial experiments. Upon completion, students should be able to describe data and test inferences about populations using sample data.

### **MAT 155A**

#### **Statistics Analysis Lab**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic  
80 on Accuplacer Reading

Corequisites: MAT 155

This course is a laboratory for MAT 155. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 171**

#### **Precalculus Algebra**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 171A

This is the first of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on equations and inequalities, functions (linear, polynomial, rational), systems of equations and inequalities, and parametric equations.

Upon completion, students should be able to solve practical problems and use appropriate models for analysis and predictions.

### **MAT 171A**

#### **Precalculus Algebra Lab**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 171

This course is a laboratory for MAT 171. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 172**

#### **Precalculus Trigonometry**

Prerequisites: MAT 171

Corequisites: MAT 172A

This is the second of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on properties and applications of transcendental functions and their graphs, right and oblique triangle trigonometry, conic sections, vectors, and polar coordinates. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction.

### **MAT 172A**

#### **Precalculus Trig Lab**

Prerequisites: MAT 171

Corequisites: MAT 172

This course is a laboratory for MAT 172. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 175**

#### **Precalculus**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 175A

This course provides an intense study of the topics which are fundamental to the study of calculus. Emphasis is placed on functions and their graphs with special attention to polynomial,

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rational, exponential, logarithmic and trigonometric functions, and analytic trigonometry. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction.

### **MAT 175A Precalculus Lab**

Prerequisites: 75 on Accuplacer Elementary Algebra  
55 on Accuplacer Arithmetic

Corequisites: MAT 175

This course is a laboratory for MAT 175. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 263 Brief Calculus**

Prerequisites: MAT 171 or MAT 175

This course is designed for students needing only one semester of calculus. Topics include functions, graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results.

### **MAT 263A Brief Calculus Lab**

Prerequisites: MAT 171 or MAT 175

Corequisites: MAT 263

This course is a laboratory for MAT 263. Emphasis is placed on experiences that enhance the materials presented in the class.

Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

### **MAT 271 Calculus I**

Prerequisites: MAT 172 or MAT 175

This course covers in depth the differential calculus portion of a three-course calculus sequence. Topics include limits, continuity, derivatives, and integrals of algebraic and transcendental functions of one variable, with applications. Upon completion, students should be able to apply differentiation and integration techniques to algebraic and transcendental functions.

### **MAT 272 Calculus II**

Prerequisites: MAT 271

This course provides a rigorous treatment of integration and is the second calculus course in a three-course sequence. Topics include applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to use integration and approximation techniques to solve application problems.

### **MAT 273 Calculus III**

Prerequisites: MAT 272

This course covers the calculus of several variables and is the third calculus course in a three-course sequence. Topics include functions of several variables, partial derivatives, multiple integrals, solid analytical geometry, vector-valued functions, and line and surface integrals. Upon completion, students should be able to solve problems involving vectors and functions of several variables.

### **PHY 110 Conceptual Physics**

Prerequisites: 80 on Accuplacer Reading

Corequisites: PHY 110A

This course provides a conceptually-based exposure to the fundamental principles and processes of the physical world. Topics include basic concepts of motion, forces, energy, heat, electricity, magnetism, and the structure of matter and the universe. Upon completion, students should be able to describe examples and applications of the principles studied.

### **PHY 110A Conceptual Physics Lab**

Prerequisites: 80 on Accuplacer Reading

Corequisites: PHY 110

This course is a laboratory for PHY 110. Emphasis is placed on laboratory experiences that enhance materials presented in PHY 110. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in PHY 110.

### **PHY 131 Physics-Mechanics**

Prerequisites: MAT 121 or MAT 161 or MAT 171 or MAT 175

This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, vectors, motion, forces, Newton's laws of motion, work,

energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

### **PHY 132 Physics-Elec & Magnetism**

Prerequisite: PHY 131

Corequisite: None

This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, waves, electricity, magnetism, circuits, transformers, motors, and generators. Upon completion, student should be able to apply the principles studied to applications in engineering technology fields. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.

### **PHY 151 College Physics I**

Prerequisites: MAT 161 or MAT 171 or MAT 175

This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

### **PHY 152 College Physics II**

Prerequisites: PHY 151

This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.