



Columbia Southern University – Dept. of Continuing Education
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Education & Training Plan
Accounting Math Professional Certificate Program with Externship
Columbia Southern University (CSU)

Student Full Name: _____

Start Date: _____ End Date: _____

Program includes National Certification & an Externship Opportunity
Mentor Supported

Accounting Math Professional Certificate Program with Externship

Course Code: CSU-ACCT-M
Program Duration: 6 Months
Course Contact Hours: 375
Student Tuition: \$3,999

The Accounting Math Professional

Increasingly, basic math – addition, subtraction, multiplication, etc. – is more and more useful in daily life. Despite the combination of letters and numbers, parentheses and exponents, algebra has just as much use as these basic functions not only in daily life, but in every job function as well. Likewise the ability to analyze and interpret data is more and more valued in this data- and information-driven world. At the root of this analysis lie the basic principles of statistics. Interpreting data for business – no matter what sector it is – is imperative to making informed decisions. And with information and data so much more widely available than ever before, there's no excuse not to use this information to make sound business decisions every day. Algebra and statistics are fundamental skills individuals require for success regardless of the industry they enter, particularly in pursuing careers in Business or Computer Science.

The Accounting Math Professional Program

This program takes students through the fundamentals of algebra and statistics as well as their endless applications. Students will learn to solve multiple types of equations including both linear and quadratic functions and master the skills necessary to solve challenging word problems, including actual scenarios one encounters on the job. Further, this program will ensure students gain the skills necessary to perform complex statistical analysis of selected samples, understand how to choose the most applicable samples for study and draw conclusions from the analysis pulled from various data sets. Students will learn to gather multiple answers to questions posed every day in business using statistical distributions, probabilities, confidence intervals and more! Once able to build applicable statistical models and interpret the data pulled together, these skills will serve students in their future careers.

Education and National Certifications

- Students should have or be pursuing a high school diploma or GED.
- There are no state approval and/or state requirements associated with this program.
- There is a National Certification exam available to students who successfully complete this program:
 - **Microsoft Office Specialist (MOS) Certification Exam.**

Program Objectives

At the conclusion of this program, students will be able to:

- Differentiate among various processes used in manipulating algebraic expressions
- Analyze algebraic equations and inequalities and evaluate a function
- Evaluate the relationship between functions and graphs illustrating functions
- Analyze polynomials & rational functions, evaluate exponential and logarithmic functions
- Apply various techniques to solve systems of linear equations and inequalities
- Analyze the factorial function and explain the fundamentals of a statistical study
- Describe data sets and their measures in different forms
- Use descriptive statistics to describe and make statements about the data set
- Describe a normal distribution and make calculations using z-scores
- Use inferential statistical tests to describe population parameters
- Construct confidence intervals and use them to interpret population means
- Formulate null and research hypotheses for claims made about population means
- Use an appropriate statistical technique to test a hypothesis
- Describe the linear association for a set of paired data
- Calculate and interpret the chi-square test of independence
- Use MS Excel to organize data and calculate statistical tests alongside Microsoft Office

National Certification

Upon successful completion of this Columbia Southern University program, students would be eligible to sit for the Microsoft Office Specialist (MOS) exam. Although there are no state approval, state registration or other state requirements for this program, students who complete this program at Columbia Southern University will be prepared and are eligible to sit for this national certification exam. Students who complete this program are encouraged to complete the externship option with their program. Students who complete this program can and do sit for the MOS national certification exams and are qualified, eligible and prepared to do so. Columbia Southern University works with each student to complete the exam application and register the student to take their national certification exam.

Externship / Hands on Training / Practicum

Although not a requirement, once students complete the program, they have the ability to participate in an externship and/or hands on practicum so as to practice the skills necessary to perform the job requirements of a professional in this field. Students will be assisted with completing a resume and/or other requirements necessary to work in this field. All students who complete this program are eligible to participate in an externship and will be placed with a participating organization near their location. Columbia Southern University works with national organizations and has the ability to place students in externship opportunities nationwide.

Columbia Southern University contact: If students have any questions regarding this program including national certification and externships, **they should call Laurie Coleman at 800.977.8449 x1840 or via email at laurie.coleman@columbiasouthern.edu.**

Note: No refunds can be issued after the start date published in your Financial Award document.



About Columbia Southern University!

Welcome to Columbia Southern University!

OUR MISSION: Columbia Southern University provides diverse learning experiences and affordable, flexible distance education programs at the certificate, undergraduate, and graduate levels to a global student body, delivered by qualified, student-centered faculty committed to teaching and student learning. The University is dedicated to providing exceptional academic and student support services.

OUR VISION: The Vision of Columbia Southern University is to change and improve lives through higher education by enabling students to maximize their professional and personal potential.

The Continuing Education Department at Columbia Southern University is committed to a program of public service, outreach and continuing education by sharing resources with the workforce to enhance the intellectual capital of all those in need or desire lifelong learning and development. <http://www.columbiasouthern.edu/online-degree/continuing-education>



Columbia Southern University and Pearson Education

Columbia Southern University's eLearning programs were developed in partnership with Pearson Education to produce the highest quality, best-in-class content and delivery necessary to enhance the overall student learning experience, boost understanding and ensure retention. Pearson Education is the premier content and learning company in North America offering solutions to the higher education and career training divisions of colleges and universities across the country aimed at driving quality education programs to ensure student success. Please visit us at www.pearson.com.

About Pearson Education

Welcome to Pearson. We have a simple mission: to help people make more of their lives through learning. We are the world's leading learning company, with 40,000 employees in more than 80 countries helping people of all ages to make measurable progress in their lives. We provide a range of education products and services to institutions, governments and direct to individual learners, that help people everywhere aim higher and fulfil their true potential. Our commitment to them requires a holistic approach to education. It begins by using research to understand what sort of learning works best, it continues by bringing together people and organizations to develop ideas, and it comes back round by measuring the outcomes of our products.

Accounting Math Professional Program Detailed Student Objectives:**ALGEBRA FUNDAMENTALS**

- Simplify an algebraic expression by combining like terms
- Add, subtract, and multiply polynomial expressions
- Factor polynomial expressions
- Simplify rational expressions

LINEAR EQUATIONS AND INEQUALITIES

- Solve various forms of linear equations
- Solve linear and absolute value inequalities

QUADRATIC AND OTHER EQUATIONS

- Solve a quadratic equation by factoring, completing the square or the quadratic formula
- Solve higher-order polynomial equations by factoring
- Solve equations that contain radicals and exponents

FUNCTION BASICS

- Recognize function notation
- Evaluate a function at a value or at an algebraic expression
- Determine whether or not a given relationship is a function
- Determine whether or not a given graph represents a function
- Determine the domain and range of a function using a graph
- Identify the graphs of various common functions, including linear functions, absolute value functions, quadratic functions, square root functions and cubic functions

ADVANCED FUNCTIONS

- Determine the domain and range of a function algebraically
- Apply the rules of algebra for functions
- Determine the inverse of a function
- Apply transformations to the graphs of common functions
- Identify the graph of a function and its inverse

FUNCTIONS OF POLYNOMIALS

- Identify the graphs of various common functions including linear functions, absolute value functions, quadratic functions, square root functions and cubic functions
- Sketch the graph of a polynomial or rational function

POLYNOMIAL AND RATIONAL FUNCTIONS

- Solve various forms of linear equations
- Sketch the graph of a polynomial or rational function
- Solve a polynomial or rational inequality

EXPONENTIAL AND LOGARITHMIC FUNCTIONS

- Solve a polynomial or rational inequality
- Explain the inverse relationship of exponential and logarithmic functions
- Solve an exponential or logarithmic equation

EXPONENTIAL AND LOGARITHMIC EQUATIONS AND MODELING

- Solve an exponential or logarithmic equation
- Determine a model for data using exponential and logarithmic functions

SYSTEMS OF EQUATIONS

- Solve a system of linear equations in two or more variables
- Solve a system of linear inequalities graphically

MATRICES

- Solve a system of linear equations using matrices

SERIES AND SEQUENCES

- Determine the terms of a sequence
- Determine the sum of a series
- Justify statements about sequences and series using mathematical induction
- Expand binomials using the binomial theorem
- Apply the fundamental counting principle
- Distinguish between a combination and permutation

INTRODUCTION TO STATISTICS – DEFINITIONS / TERMINOLOGY

- Define the fundamental terms used in statistics
- Solve math problems using correct order of operations, fractions, and rounding
- Discuss variables and measurement scales
- Discuss experimental design

DESCRIPTIVE STATISTICS – PART 1

- Evaluate various data display methods
- Define frequency distribution
- Use frequency distributions to answer questions about the data
- Graph paired data sets using scatter plots
- Use graphs to describe data

DESCRIPTIVE STATISTICS – PART 2

- Define terms related to measures of variability
- Calculate the measures of central tendency and the measures of variability and interpret their meaning
- Calculate the first, second, and third quartiles, and calculate the interquartile range for a given data set
- Use the derived descriptive statistics to make accurate statements about the data set

PROBABILITY

- Explain basic terms and concepts in probability
- Distinguish between independent and dependent events
- Distinguish between two mutually exclusive events and independent events
- Compute probability outcomes

NORMAL DISTRIBUTIONS AND STANDARD SCORES

- Know the characteristics of a normal curve and a standardized normal curve
- Compute z-scores using raw data
- Calculate probabilities using the z-table and z-scores

CONFIDENCE INTERVALS

- Apply the Central Limit Theorem to make inferences about the population
- Explain the basic terms in constructing confidence intervals
- Construct a confidence interval for a population mean using normal distribution and t-distribution

HYPOTHESIS TESTING WITH ONE SAMPLE

- Define the basic terms used in hypothesis testing
- Identify type I and type II errors of a hypothesis
- Conduct a t-test for one sample hypothesis testing
- Write null and research hypotheses, and determine if the research hypothesis is one tailed or two tailed

HYPOTHESIS TESTING WITH TWO SAMPLES

- Determine whether two samples are independent or dependent
- Conduct a two-sample t-test for difference between two population means using independent samples and interpret the results
- Conduct a two-sample t-test for dependent samples to test mean difference for a population of paired data and interpret the results
- Given a hypothesis, identify the appropriate statistical technique for testing it

HYPOTHESIS TESTING FOR THREE OR MORE GROUPS

- Discuss and interpret the F distribution
- Use one-way analysis of variance (ANOVA) for hypothesis testing
- Calculate and interpret F
- Determine when Tukey's HSD is to be used
- Perform the calculations necessary to calculate and interpret Q

CORRELATION AND REGRESSION

- Interpret the strength of a linear association between two variables in a scatter plot
- Calculate and interpret the correlation coefficient for a given data set
- Calculate and interpret the coefficient of determination for a given data set
- Construct a regression line for given data
- Use a regression equation for prediction of a population parameter
- Find and use the standard error of the estimate for a regression line

CHI-SQUARE TEST OF INDEPENDENCE

- Discuss how to use the chi-square distribution
- Calculate and interpret chi-square
- Identify situations in which the chi-square test of independence would be used

USING EXCEL TO PERFORM STATISTICAL TESTS

- Enter data into Excel
- Use the functions of Excel
- Use Excel to calculate and interpret means, standard deviations, and z-Scores
- Use Excel to calculate and interpret t, F, and r
- Use Excel to calculate a regression equation

Note: This program can be completed in 6 months. However, students will have online access to this program for a 24-month period.

MICROSOFT OFFICE Module

- Use an integrated software package, specifically the applications included in the Microsoft Office suite
- Demonstrate marketable skills for enhanced employment opportunities
- Describe proper computer techniques for designing and producing various types of documents
- Demonstrate the common commands & techniques used in Windows desktop
- List the meaning of basic PC acronyms like MHz, MB, KB, HD and RAM
- Use WordPad and MSWord to create various types of documents
- Create headings and titles with Word Art
- Create and format spreadsheets, including the use of mathematical formulas
- Demonstrate a working knowledge of computer database functions, including putting, processing, querying and outputting data
- Define computer terminology in definition matching quizzes
- Use the Windows Paint program to alter graphics
- Use a presentation application to create a presentation with both text and graphics
- Copy data from one MS Office application to another application in the suite
- Use e-mail and the Internet to send Word and Excel file attachments
- Demonstrate how to use the Windows Taskbar and Windows Tooltips
- Explain how copyright laws pertain to data and graphics posted on the Internet
- Take the college computer competency test after course completion
- Follow oral and written directions and complete assignments when working under time limitations

Note: Although the Microsoft Office Module is not required to successfully complete this program, students interested in pursuing free Microsoft MOS certification may want to consider completing this Microsoft Office Module at no additional cost.

System Requirements:

Windows Users:

- Windows 8, 7, XP or Vista
- 56K modem or higher
- Soundcard & Speakers
- Firefox, Chrome or Microsoft Internet Explorer

Mac OS User:

- Mac OS X or higher (in classic mode)
- 56K modem or higher
- Soundcard & Speakers
- Apple Safari

iPad Users:

- Due to Flash limitations, eLearning programs are NOT compatible with iPads

Screen Resolution:

- We recommend setting your screen resolution to 1024 x 768 pixels.

Browser Requirements:

- System will support the two latest releases of each browser. When using older versions of a browser, users risk running into problems with the course software.
- Windows Users: Mozilla Firefox, Google Chrome, Microsoft Internet Explorer
- Mac OS Users: Safari, Google Chrome, Mozilla Firefox

Suggested Plug-ins:

- Flash Player
- Real Player
- Adobe Reader
- Java