College courses in mathematics and statistics, particularly those in the first years of the undergraduate curriculum, are increasingly being taught to emphasize conceptual understanding. The mechanical calculations that previously dominated such courses can now be readily and effectively done by technology, freeing instructors to develop each student’s conceptual thinking and problem-solving skills. Statistics education, in particular, has seen a well-documented shift toward the teaching of concepts in the context of applications that matter in business or society.

Correspondingly, the concepts now being emphasized in statistics – traditionally considered a discipline in the arts and sciences – have important applications to the ‘business side’ subject of financial statement auditing. Yet despite this seemingly natural synergy between teaching mathematics and statistics in context, and the need for auditors to better understand decision-making with statistical data, surprisingly little has been done to integrate the teaching of these two important fields.

We believe that these two disciplines, when taught in an integrated manner, have positive impacts on each other. On one hand, students of math and statistics learn effectively when immersed and engaged within a real-world application such as financial statement auditing. On the other hand, business students studying auditing learn to make better professional judgments when they understand the principles of mathematics and statistics. What follows are some ideas for teaching
mathematical and statistical concepts to the practitioner studying auditing, while simultaneously using the auditing context to reinforce the concepts for the more abstract thinkers that are studying mathematics and statistics.

**Educating future auditors**

Today’s financial statement auditors work in a highly regulated, difficult environment where they must make professional judgments about the reliability of financial statement balances of the entities that they are hired to examine. They report these decisions in a very public way, a true real-world application with a tremendous impact on the proper functioning of the worldwide capital markets. As a result, auditors need to employ the very best tools at their disposal when completing their work.

The objective of a financial statement audit is to provide reasonable assurance that the financial statements prepared by a company comply with the set of accounting rules that exist in a particular jurisdiction (e.g., International Financial Reporting Standards, or IFRS). An auditor is required to gather enough evidence to determine whether the financial statements have been recorded in accordance with those rules. Having gathered and examined the evidence, the auditor will reach a conclusion and report an opinion about the correspondence of the financial statements with the prescribed rules. Simply put, through their examination, auditors add credibility to the financial statements of the company being audited (Abdolmohammadi and Thibodeau, 2007).

Auditing education starts with understanding this professional landscape. Before taking the auditing course, undergraduates first take courses that impart detailed knowledge about prevailing accounting rules. This gives them the background knowledge necessary to conduct a successful audit.

In our experience, most students in these courses see mathematics and accounting as closely related subjects. Both are quantitative fields that involve problem solving, and a student with an exposure to only entry-level topics in each area would very reasonably conclude that they have much in common. For example, a high-school algebra course and a first bookkeeping course each involve learning some algorithms that, when correctly applied, lead to a specific correct answer.

Beyond the apparent similarities in the classroom, there are also some surprising similarities in practice that have a synergistic effect.