

**It's time to recognize
accounting as STEM.**

Accounting is a critical foundation for businesses, governments, and financial systems. That foundation is built on math and technology skills.

STEM designation recognizes the facts: technology and math are essential to the success of accounting students, professionals, and the public they serve.

Accounting in action: STEM-driven innovations in finance and technology

STEM designation is given to programs that advance critical math skills and technological innovation. Accountants today leverage data analysis and develop technology to improve audits, predict trends, and assess the risk of fraud, among many other services.

- **Robotic Process Automation (RPA)** is a tech tool that accountants use to automate tasks. By writing scripts and creating bots, they're making financial management and operations more efficient.
- **Other emerging technologies related to blockchain and cybersecurity** are disrupting the fields of accounting and finance. Professionals in the accounting field are required to understand these technologies and have been instrumental in developing software and other technologies to manage them.
- **Artificial intelligence** is being used to assess financial risks in real time, and firms have developed proprietary technology to improve their data analysis and reporting capabilities.
- **Dynamic Audit Solution (DAS)** is a tool that enables greater efficiency, improved quality, and enhanced client value through data-driven workflows, real-time collaboration, and robust data analytics.

Why STEM designation matters.

STEM designation is not just a label; it's a necessity for schools and businesses.

For Students	For American Competitiveness and Innovation
<ul style="list-style-type: none">• STEM designation opens doors and opportunities for in-demand jobs.	<ul style="list-style-type: none">• STEM-qualified professionals are critical to U.S. economic growth and competitiveness in global markets.
<ul style="list-style-type: none">• STEM-designated fields are eligible for additional state and federal resources, expanding opportunities for underserved students at all education levels.	<ul style="list-style-type: none">• Expanding STEM programs is crucial to closing the growing talent gap for qualified accountants and CPAs.
<ul style="list-style-type: none">• International students in STEM fields can extend Optional Practical Training (OPT) periods, offering more time to gain practical experience in the United States and expanding the talent pool for U.S. employers.	<ul style="list-style-type: none">• Accountants are integral to driving and managing technological innovation in finance and business. This requires accountants with the math and technology skills to keep pace.

Creating pathways for future accountants.

Congress can help by passing bipartisan bills like the [STEM Education in Accounting Act](#) and [Accounting STEM Pursuit Act of 2023](#). The legislation adds “activities to promote the development, implementation, and strengthening of programs to teach accounting” to the list of allowable uses of grant funding under the Student Support and Academic Enrichment Grant program, with **a focus on increasing access to high-quality accounting education for K-12 students in underrepresented groups**.

While this legislation does not immediately translate into accounting being recognized as a STEM field at the collegiate level, its passage would strongly reinforce the message that it should be.

Universities are already advancing STEM curricula for accounting.

Accounting students today engage in research, innovation, and development of new technologies primarily using data and financial analytics, but also in computer science.

At least 56 schools have received STEM designation for their postgraduate accounting programs, including the University of Illinois, Ohio State University, Fordham, Cornell, University of Northern Iowa, and the University of Mississippi. At least two, the University of Northern Iowa and USC-Marshall School of Business, have received STEM designation for their bachelor’s degree programs.

Today's accounting curriculum.

As a result of the heavy emphasis on technology in the profession, the education of new students in the profession continues to evolve. Here are some of the core STEM concepts that today's accounting students are learning:

Representative Accounting Course Title	Representative Technology Taught in the Course
<p>Accounting Information Systems</p> 	<p>Record Data Using Cryptography: Blockchain – cryptography technology to store data in a shared immutable ledger</p> <p>Protect Data Using Cybersecurity: technology used to protect financial and other sensitive data</p> <p>Organize Corporate Data into Relational Databases: Access (Microsoft)– Relational Database Management System Software to organize and store data in a scalable way</p>
<p>Accounting Data Analytics</p> 	<p>Write Computer Scripts to Extract Relevant Data: SQL (Structured Query Language) used to extract relevant data from larger database for further analysis</p> <p>Produce Data Visualizations to Evaluate Data and Communicate Findings: Power BI/Tableau are software tools used to produce and evaluate data visualizations</p> <p>Analyze Data Using Wide Diversity of Data Analytics Techniques to Address Decision Maker Questions: SPSS/Stata are software tools used to analyze data (regression, correlation, hypothesis testing, variance analysis)</p>
<p>Auditing (Internal and External)</p> 	<p>Evaluate Risk by Examining Accounting Transactions: IDEA – software tool used to assess risk, analyze financial statement data</p> <p>Prepare Data for Analysis: Alteryx – software tool used to perform ETL (extract, transform, and load) procedures to prepare audit data for analysis</p> <p>Employ Robotic Process Automation (RPA) Techniques to Evaluate Anomalies and Outliers: UiPath is a software tool used to perform Robotic Process Automation (RPA) to consistently evaluate data for anomalies/outliers</p>
<p>Financial Accounting</p> 	<p>Transmit Financial Data Using XML Technology: XBRL (XML – Extensible Markup Language) – technology to electronically communicate financial statement data and other relevant business information. XBRL tags financial data for use in analysis programs.</p> <p>Support Estimates and Assumptions Using Prescriptive Analytics: Financial accounting requires a host of estimates and assumptions that require sensitivity analysis to support the resulting financial statements</p>

Representative Accounting Course Title

Taxation (and Tax Planning)



Representative Technology Taught in the Course

Use of Time Series and Regression Analytics for Tax Planning

Purposes: Techniques used to forecast future taxable income as part of tax planning (to structure transactions in a way to minimize future taxes)

Manage Tax Data: Organize tax data using data warehouses, data marts, and data cubes to have data ready for use in analysis and as support for uncertain tax positions

Prepare U.S. Tax Returns: Utilize tax preparation software to prepare a hypothetical tax return

Research Tax Issues: Use databases (e.g., RIA Checkpoint, CCH, LexisNexis) to research client tax issues

Determine Implications of Tax Policy Revisions: Incorporate visualization software to assess the impact on taxes from policy revisions

Compare IRS Statistics of Income to Client Hypothetical Return: Perform comparative study using data analytics and visualization software

Forensic Accounting



Identify Red Flags by Examining Accounting Transactions: IDEA – software tool used to assess risk, analyze financial statement data. For example, transactions that occur outside normal business hours, or that do not follow Benford's law distributions may be indicative of fraud.

Identify Transactions that do not follow Prescribed Policies using Process Mining Technology: Celonis, UIPath, etc. can help identify transactions that bypassed standard authorization procedures

Cost/Management Accounting



Perform Predictive and Prescriptive Analytics to Address Relevant Management Questions:

Various technology tools to perform predictive and prescriptive analytics techniques including Optimization, What-if Scenario Analysis, What-If Sensitivity Analysis, Goal-seek Analysis, Cash Flow Analysis (NPV, IRR, etc.)