

**PROPOSAL TO CHANGE CIP CODE
POOLE COLLEGE OF MANAGEMENT**

Program title: Master of Accounting (MAC)

Current CIP Code: 52.0301

Proposed new CIP Code: 52.1301 Management Science, General

Definition: A general program that focuses on the application of statistical modeling, data warehousing, data mining, programming, forecasting and operations research techniques to the analysis of problems of business organization and performance. Includes instruction in optimization theory and mathematical techniques, data mining, data warehousing, stochastic and dynamic modeling, operations analysis, and the design and testing of prototype systems and evaluation models.

Request justification (500 character limit)

CIP 52.1301 better describes the objectives and content of the Jenkins MAC program. Businesses have transformed the way they measure, analyze and present information. The accounting profession responded to this trend and is looking for the MAC Program to prepare students for this data-driven world. The MAC curriculum was modified, and continues to evolve, to educate students about how to extract, transform, and load data to perform data analytics and present insights gained from the data. Existing courses were modified and new courses developed to include application of data analytic techniques and related technologies.

Effective date: Fall 2020

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PROPOSED UPDATE TO CLASSIFICATION OF INSTRUCTIONAL PROGRAMS (CIP) FOR MASTER OF ACCOUNTING

The NC State University Poole College of Management requests to update the Classification of Instructional Programs (CIP) number for the Jenkins MAC Program from 52.0301 Accounting, General to 52.1301 Management Science, General. The Management Science CIP better represents the curriculum and course content of the MAC Program, which has changed its curriculum considerably in recent years in response to evolving data analysis practices by businesses and the accounting profession that provides services to those data-driven businesses. Further, the MAC Program continues to explore ways to update the curriculum for the ever-changing area of data analytics and related emerging technologies, such as artificial intelligence, robotic process automation and blockchain.

CURRENT PROGRAM TITLE: Master of Accounting

CURRENT CIP CODE: 52.0301 Accounting, General

DEFINITION: A program that prepares individuals to practice the profession of accounting and to perform related business functions. Includes instruction in accounting principles and theory, financial accounting, managerial accounting, cost accounting, budget control, tax accounting, legal aspects of accounting, auditing, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public, and non-profit organizations.

PROPOSED CIP CODE: 52.1301 Management Science, General

DEFINITION: A general program that focuses on the application of statistical modeling, data warehousing, data mining, programming, forecasting and operations research techniques to the analysis of problems of business organization and performance. Includes instruction in optimization theory and mathematical techniques, data mining, data warehousing, stochastic and dynamic modeling, operations analysis, and the design and testing of prototype systems and evaluation models.

REQUEST JUSTIFICATION

According to an article from the Harvard Business School, “Business analytics is a powerful tool in today’s marketplace. Across industries, organizations are generating vast amounts of data, which, in turn, has heightened the need for professionals who know how to interpret and analyze that information.

According to a recent study by MicroStrategy, companies worldwide are using data to:

- Boost process and cost efficiency (60 percent)
- Drive strategy and change (57 percent)
- Monitor and improve financial performance (52 percent)

The research also shows that, over the next three years and beyond, 71 percent of global enterprises predict their investments in analytics will accelerate.”

With these business trends clearly established, the accounting profession made significant investments in methodologies, tools and skills to address these needs. The Big 4 accounting firms (Deloitte, EY, KPMG, and PwC) alone over the past several years have invested more than \$1 billion each to transform their service offerings. In 2015, PwC issued a document to higher education titled, “Data driven, What students need to succeed in a rapidly changing business world,” highlighting the anticipated needs of the accounting profession and how higher education needs to respond to those needs. In the document, PwC concluded, “The global megatrends and data analytics are transforming the workplace, and the skills students need should correspondingly transform. At universities, accounting curriculum should be refreshed to satisfy the demands of the business world.”

In response to the PwC call to action and advice from the Accounting Department and MAC advisory boards, the MAC Program began a journey to transform the curriculum to include significantly more data analytics, related technologies and critical thinking skills. As this is an evolving trend and the MAC Program recognizes this is a journey as opposed to a destination, the curriculum is being transformed to meet the needs of business today while being nimble enough to adjust to meet emerging trends. The MAC Program anticipates the curriculum will continue to evolve to include even more data analytics and related technologies in the future. With over 98% of our MAC Program graduates joining the accounting profession, it is critical for the MAC Program to evolve to meet business needs.

Since fall 2015, the MAC Program has made changes to the curriculum to address these business needs. For example, the MAC Program now includes an accelerated two-week data analytics bootcamp incorporated as part of the first two weeks of the fall core classes. Additionally, we have annual emerging technologies summits to help students keep up with the technology trends influencing the accounting industry. Finally, we have added seven 1-hour and 3- hour data analytics elective classes and incorporated data analytics into most of the core, required classes. Topics include Monte Carlo simulation, strategic risk analysis, tax data analytics, enterprise resource planning systems (ERP), advanced Excel data analytics skills, utilization of visualization software, concepts of extracting, transforming and loading data, data base management, forecasting effective tax rates and data security and warehousing. As a result, there is a much closer correspondence between the MAC curriculum and CIP code 52.1301 than there is with CIP code 52.0301.

ALIGNMENT WITH NC STATE MAC CURRICULUM

The Jenkins MAC Program is one program offered in two formats: On-Campus and Online. The 31-hour program attracts full-time and part-time students who are seeking to begin a career in the accounting profession, change career direction, or advance their existing career. Both formats share a common core of 22 hours (seven 3-hour classes and one 1-hour class). The 1-hour course focuses on career preparation. In addition to the 22 core hours, there are 9 hours

of elective courses. The 9 hours can be applied to one of three concentrations (tax, information technology, or enterprise risk management) or for a non-concentration option. All three concentrations contain significant data analytics and related technologies. Certain courses and concentrations require a practicum experience.

Table 1 summarizes required courses for both the on-campus and online formats, whereas Table 2 lists all of the elective courses. The tables summarize the STEM-relevant content of each course. Out of 22 credit-hours of common core, required courses, 18 credit-hours have significant amounts of STEM content. As for electives, 22 of the 22 offerings have a STEM orientation.

Table 1: MAC On-Campus and Online Required Courses

Course prefix and number	Course title	Credit hours	STEM content
Required courses			
ACC 508	Advanced Commercial Law	3	None, significant
ACC 510	Advanced Financial Accounting	3	Forecasting, operations research techniques, analysis of business organization and performance, data visualization
ACC 519	Applied Financial Management	3	Operations research techniques, analysis of business organization and performance, forecasting
ACC 530	Advanced Income Tax	3	Application of statistical modeling, programming, and forecasting techniques, analysis of business organization and performance
ACC 533	Accounting & Tax Research	3	Operations research techniques to the analysis of problems of business organization and performance
ACC 540	IT Risks & Controls	3	Operations research techniques to the analysis of problems of business organization and performance, operations

			analysis
ACC 550	Advanced Auditing	3	Operations research techniques to the analysis of problems of business organization and performance, data mining, operations analysis
ACC 600	Managerial & Career Effectiveness	1	None, significant
Total required hours		22	

Table 2: MAC On-Campus and Online Elective Courses

Course prefix and number	Course title	Credit hours	STEM content
Electives courses			
ACC 520	Advanced Managerial Accounting	3	Operations research techniques to the analysis of problems of business organization and performance, operations analysis, forecasting
ACC 560	Tools for Tax Analytics	1	Statistical modeling, data mining, data warehousing
ACC 561	Database Management in Tax	1	Operations research techniques to the analysis of problems of business organization and performance, data mining
ACC 562	Forecasting Effective Tax Rates & Scenario Analysis - Introduction	1	Operations research techniques to the analysis of problems of business organization and performance, data mining
ACC 563	Forecasting Effective Tax Rates & Scenario Analysis – Advance Application	1	Operations research techniques to the analysis of problems of business organization and performance, data mining
ACC 564	Project Management and Process Documentation	1	Operations research techniques to the analysis of problems of business organization and

			performance, operations analysis
ACC 565	Visual Analytics in Tax	1	Operations research techniques to the analysis of problems of business organization and performance
ACC 570	Data Security and Warehousing in Tax	1	Data warehouse
ACC 588	Special Topics – Data Analysis in Accounting	3	Operations research techniques to the analysis of problems of business organization and performance, data mining
ACC 588	Special Topics – IT Audit	3	Operations research techniques to the analysis of problems of business organization and performance, data mining
MBA 588	Special Topics - Personal Financial Planning	3	Forecasting, dynamic modeling, evaluation models
BUS 590	Special Topics - Strategic Risk Analysis Using Excel	1	Application of statistical modeling, programming, and forecasting techniques, analysis of business organization and performance
BUS 590	Special Topics - Forecasting and Scenario Planning Using Monte Carlo Simulation	1	Application of statistical modeling, programming, and forecasting techniques, analysis of business organization and performance
BUS 590	Special Topics - Communicating Risk Information using Tableau	1	Forecasting, operations research techniques, analysis of business organization and performance, data visualization
BUS 590	Special Topics – Corporate Tax Strategy	3	Analysis of business organization and performance

MBA 511	Data Security and Privacy	3	Data warehousing
MBA 515	Enterprise Resource Planning Systems	3	Data warehousing
MBA 518	Fundamentals of Enterprise Risk Management	3	Application of statistical modeling, forecasting techniques, analysis of business organization and performance
MBA 519	ERM Practicum	3	Analysis of business organization and performance, operations analysis
MBA 521	Advanced Corporate Finance	3	Statistical modeling, optimization
MBA 525	Tax and Business Strategy	3	Analysis of business organization and performance, operations analysis
MBA 590	Special Topics - ERP Configuration (SAP)	1	Data Warehousing
Total elective hours needed by student		9	

SIMILAR PROGRAMS IN THE UNC SYSTEM OR NATION

MAC programs at many well-known research universities, with nationally recognized accounting programs, have become STEM designated. For each of the programs listed below, the programs have changed the CIP code for all tracks of their Master of Accounting degree to Management Science. To be competitive with these accounting programs, it is important for the Jenkins MAC Program to be STEM designated. This is an emerging trend and we have the opportunity to establish a leadership position.

Table 3. Business schools and accounting programs with STEM designation

Institution	Program
University California - Davis	Graduate School of Management – Master of Professional Accountancy
Cornell University	SC Johnson College of Business – MPS in Management, Accounting Specialization
University of Illinois	Gies College of Business – Master of Science in Accountancy
University of Maryland	Robert H. Smith School of Business – Master of Science in Accounting
University of Miami	Herbert Business School - Master of

	Science in Accounting
University of North Carolina-Chapel Hill	Kenan-Flagler Business School – Master of Accounting
Ohio State University	Fisher College of Business – Master of Accounting
University of Pittsburgh	Joseph M. Katz Graduate School of Business – Master of Accounting
University of Rochester	Simon Business School – Master of Accountancy
University of Virginia	McIntire School of Commerce – Master of Accounting