

The CMA Exam: How Well Does It Align with Typical Undergraduate and Graduate Business Programs?

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IN THIS CURRICULUM MAPPING PRESENTATION, THE AUTHORS SHOW HOW UNDERGRADUATE STUDENTS IN ACCOUNTING AND FINANCE DEGREE PROGRAMS AND GRADUATE STUDENTS IN MASTER OF ACCOUNTANCY AND MASTER OF BUSINESS ADMINISTRATION PROGRAMS CAN ALIGN THEIR COURSES WITH THE CONTENT ON THE CMA EXAM. THIS WAY THE STUDENTS WILL BE BETTER PREPARED TO SIT FOR THE EXAM.

Effective May 1, 2010, IMA® (Institute of Management Accountants) revised the structure of the CMA® (Certified Management Accountant) program, which increased the overall rigor of the program and the relevance of the CMA for accountants and financial professionals in business. Over the years there have been many discussions about how colleges and universities can structure their curricula to help students prepare for the exam and the business world. Here we present curriculum

mappings that illustrate the alignment between content areas tested on the CMA exam and the content areas included in typical:

- ◆ Undergraduate accounting degree programs,
- ◆ Undergraduate finance degree programs,
- ◆ Master of Accountancy (MAcc) degree programs, and
- ◆ Master of Business Administration (MBA) degree programs.

Our curriculum mappings will help educators (pro-

fessors, department heads, and deans) understand and recommend the CMA program to undergraduate and graduate business students. They also provide undergraduate students in accounting or finance degree programs and graduate students in MAcc or MBA programs with the information they need to prepare for the CMA exam. Because students can take the CMA exam prior to earning their bachelor's degree, we provide a guide for helping them plan their coursework, including the selection of electives, to improve and streamline their preparation for the CMA examination and increase their chances for success.

BACKGROUND

The CMA is a highly respected and the most appropriate professional credential for accounting and finance professionals working in business. As part of its ongoing goal to ensure that the CMA is the most relevant professional designation for finance and accounting professionals working within organizations, the ICMA[®] (Institute of Certified Management Accountants) took a greenfield approach to validate and further understand the knowledge, skills, and abilities required by today's management accounting professionals. As a result of this approach, which included consideration of primary and secondary research on the competencies that global CFOs and controllers deemed critical for organizational success, ICMA redesigned the CMA exam as a two-part exam:

Part 1—Financial Planning, Performance and Control

Format: four hours of exam time, 100 multiple choice questions, and two 30-minute essay questions

Recommended preparation time: approximately 100-150 hours

Content:

- Planning, Budgeting, and Forecasting
- Performance Management
- Cost Management
- Internal Controls
- Professional Ethics

Part 2—Financial Decision Making

Format: four hours of exam time, 100 multiple choice

questions, and two 30-minute essay questions

Recommended preparation time: approximately 100-150 hours

Content:

- Financial Statement Analysis
- Corporate Finance
- Decision Analysis and Risk Management
- Investment Decisions
- Professional Ethics

How can students best design their educational programs to successfully prepare for and pass the exam? This article answers that question. We first examine undergraduate programs in finance and accounting and then consider graduate accounting and MBA programs.

UNDERGRADUATE PROGRAMS

Curricular Content

As a first step in determining how to best design an undergraduate program to meet students' preparation needs for the CMA exam, we examined the curriculum of selected programs at a variety of institutions, including public and private as well as large and small schools. To help us develop our recommendations, we consulted with an external panel of accounting and finance professors representing a wide range of educational programs.

In Table 1, we present the outcome of our analysis for undergraduate programs, which shows the content of "typical" undergraduate accounting and finance programs specifically relevant to the CMA exam. Generic descriptions of the courses listed in that table are included in Appendix 1. In that appendix, topics covered within a course that are tested on the CMA exam are listed in bold type.

Curriculum Mapping

To what extent do the courses included in these programs cover the content of the new CMA exam? To answer this question, we looked at the content specification outlines of the areas tested on the CMA exam and examined where and to what extent these areas are covered in the typical structure of the two undergraduate and two graduate business programs selected.

Our evaluation was based on a review of online syllabi, our own experiences, and those of our review

Table 1: Typical Undergraduate Program Curriculum

(a) Accounting Program^{1,3,4}

ADV	Advanced Accounting	REQ
AIS	Accounting Information Systems	ELEC
AUD	Auditing	REQ
BE	Business Ethics	REQ
CA	Cost Accounting/Advanced Managerial	ELEC or REQ
CF	Corporate Finance (Intermediate)	REQ
FA	Financial Accounting	REQ
INT	Intermediate Accounting	REQ
IF	International Finance	ELEC
INV	Investments	ELEC
MA	Managerial Accounting	REQ
MIE	Microeconomics	REQ
OP	Operations Management	ELEC
TAX	Federal Income Taxation	REQ

(b) Finance Program^{2,3,4}

ADV	Advanced Accounting	ELEC
AIS	Accounting Information Systems	ELEC
AUD	Auditing	ELEC
BE	Business Ethics	REQ
CA	Cost Accounting	ELEC
CF	Corporate Finance (Intermediate)	REQ
FA	Financial Accounting	REQ
INT	Intermediate Accounting	ELEC
IF	International Finance	REQ
INV	Investments	REQ
MA	Managerial Accounting	REQ
MIE	Microeconomics	REQ
OP	Operations Management	ELEC
TAX	Federal Income Taxation	ELEC

Key: REQ=required, ELEC=elective

Notes:

- 1 In most undergraduate accounting degree programs, at least one course in Corporate Finance (CF) is required.
- 2 In most undergraduate finance degree programs, at least two accounting courses—Financial Accounting (FA) and Managerial Accounting (MA)—are required.
- 3 In most undergraduate accounting and finance degree programs, at least one course in Operations Management (OPM), Microeconomics (MIE), and Business Ethics (BE) is required.
- 4 The business courses listed are not all inclusive for each respective degree/program.

panel. For the undergraduate programs, the output of this analysis resulted in the curriculum mappings presented in Tables 2 and 3.

Each table lists the topic areas covered by the CMA exam and indicates the extent to which each program

covers those topics. The degrees of coverage are *heavy*, *moderate*, *limited*, *slight*, and *no coverage* of the content areas tested on the new CMA examination. A course legend describing course abbreviations is provided in Table 1. For the undergraduate programs, courses are

Table 2: CMA Content Coverage in a Typical Undergraduate Accounting Program

(a) Part 1—Financial Planning, Performance and Control

	Heavy	Moderate	Limited	Slight	None
A. Planning, Budgeting, and Forecasting (30%)					
1. Budgeting concepts and planning processes	CA	MA		CF	
2. Budget types (activity-based budgeting, flexible budgeting, project budgeting)		CA, MA		CF	
3. Annual profit plans (master budget)		CA, MA	CF		
4. Forecasting (including use of regression analysis and learning curves)		CF	MA		
B. Performance Management (25%)					
1. Flexible budgets, control and performance evaluation factors		CA, MA	OP	CF	
2. Variance analysis and standard costs	CA		MA		
3. Responsibility accounting and segment analysis (e.g., cost centers, revenue centers, ROI)		CA	MA		
4. Balanced scorecard		MA	CA		
C. Cost Management (25%)					
1. Cost concepts and terminology	CA, MA				
2. Costing systems (job order, process costing)	CA	MA			
3. Overhead allocation (e.g., ABC costing)	CA	MA			
4. Business process performance and operational efficiency topics (e.g., JIT, ABM, theory of constraints)		MA	CA, OP		
D. Internal Controls (15%)					
1. Risk assessment and internal control environment	AIS, AUD				
2. Internal auditing and audit types		AUD		AIS	
3. Accounting information system controls	AIS	AUD			
E. Professional Ethics (5%)					
1. Ethical considerations for management accounting professionals		MA	AUD	BE, CA	

identified as either required or elective under their respective degree programs.

As indicated in Table 2a, all topic areas included in the first part of the CMA exam are usually covered, at least to a moderate degree, in the typical undergraduate accounting program with an appropriate selection of electives. This would require taking elective courses in Cost Accounting and in Accounting Information Sys-

tems if they are not in the core accounting curriculum.

The situation is slightly different for the second part of the CMA exam. Table 2b indicates there are clear gaps in the typical accounting undergraduate curriculum and the moderate degree of knowledge needed in the areas covered by the exam. In particular, the areas of international finance, pricing, and tax implications for operational and for investment decisions have only

Table 2: CMA Content Coverage in a Typical Undergraduate Accounting Program

(b) Part 2—Financial Decision Making

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (25%)					
1. Financial statement purposes and limitations	ADV, FA, INT		CF		
2. Financial statement interpretation (including ratio and comparative analyses)	ADV, CF	AUD, INT	FA		
3. Fair value acct., market value vs. book value	ADV	INT		CF, FA	
4. IFRS vs. U.S. GAAP and other international issues		ADV, INT		CF, FA	
5. Cash flow statement preparation and analysis	INT	CF		FA	
6. Earnings quality			INT	CF, FA	
B. Corporate Finance (25%)					
1. Risk (types and measures)		CF	AUD		
2. Portfolio management			CF		
3. Financial instruments (including options and futures)			CF	INT	
4. Cost of capital	CF			MA	
5. Working capital management		CF		FA	
6. Raising capital and capital structure		CF	INT		
7. Mergers and acquisitions (restructurings)			CF	ADV	
8. Dividend policy		CF		INT	
9. International finance				CF	
10. Financial investments					X
C. Decision Analysis and Risk Management (25%)					
1. Cost-volume-profit analysis	MA, CA		CF		
2. Marginal analysis (relevant costing)		CA, MIE	CF		
3. Tax implications for operational decisions			CF	TAX	
4. Pricing			CA, MIE		
5. Risk assessment (operational, hazard, financial, and strategic)		INV	CF		
6. Enterprise risk management (ERM)		AIS	AUD		
D. Investment Decisions (20%)					
1. Capital budgeting tools	CF	MA	CA		
2. Discounted cash flow concepts (NPV, IRR)	CF	MA	INT	CA	
3. Nondiscounted analysis (e.g., payback)	CF		MA	CA	
4. Ranking investment projects	CF		MA	CA	
5. Tax implications for investment decisions			CF, INV	MA	
6. Capital investment risk analysis	CF				
7. Valuation methods		CF, INV	INT	FA	
8. Capital budgeting risk analysis	CF				
E. Professional Ethics (5%)					
1. Ethical considerations for the organization	BE	AUD		CF	

Table 3: CMA Content Coverage in a Typical Undergraduate Finance Program

(a) Part 1—Financial Planning, Performance and Control

	Heavy	Moderate	Limited	Slight	None
A. Planning, Budgeting, and Forecasting (30%)					
1. Budgeting concepts and planning processes		MA		CF	
2. Budget types (activity-based budgeting, flexible budgeting, project budgeting)		MA		CF	
3. Annual profit plans (master budget)		MA	CF		
4. Forecasting (including use of regression analysis and learning curves)		CF	MA		
B. Performance Management (25%)					
1. Flexible budgets, control and performance evaluation factors		MA	OP	CF	
2. Variance analysis and standard costs			MA		
3. Responsibility accounting and segment analysis (e.g., cost centers, revenue centers, ROI)			MA		
4. Balanced scorecard		MA			
C. Cost Management (25%)					
1. Cost concepts and terminology	MA				
2. Costing systems (job order, process costing)		MA			
3. Overhead allocation (e.g., ABC costing)		MA			
4. Business process performance and operational efficiency topics (e.g., JIT, ABM, theory of constraints)		MA	OP		
D. Internal Controls (15%)					
1. Risk assessment and internal control environment					X
2. Internal auditing and audit types					X
3. Accounting information system controls					X
E. Professional Ethics (5%)					
1. Ethical considerations for management accounting professionals		MA	CF	BE	

limited or slight coverage in most accounting degree programs, and financial investments likely has no coverage. The addition of a course in Investments (see Table 3b) addresses most of these deficiencies.

Based on our evaluation and the typical content of undergraduate courses, a program that includes the coursework shown in Table 4 would prepare undergraduate accounting majors for the CMA exam.

Suggested Program of Study—Accounting Undergraduate Program

Students typically take Financial Accounting, Managerial Accounting, and Microeconomics in the sophomore year of an undergraduate accounting program. Based on the course recommendations in Table 4, the course sequence in Table 5 enables students to efficiently integrate taking the CMA exam with their course of

Table 3: CMA Content Coverage in a Typical Undergraduate Finance Program

(b) Part 2—Financial Decision Making

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (25%)					
1. Financial statement purposes and limitations	FA		CF		
2. Financial statement interpretation (including ratio and comparative analysis)	CF	FA			
3. Fair value acct., market value vs. book value				CF, FA	
4. IFRS vs. U.S. GAAP and other international issues				CF, FA	
5. Cash flow statement preparation and analysis		CF		FA	
6. Earnings quality				CF, FA	
B. Corporate Finance (25%)					
1. Risk (types and measures)		CF			
2. Portfolio management	INV		CF		
3. Financial instruments (including options and futures)	INV		CF		
4. Cost of capital	CF			MA	
5. Working capital management		CF		FA	
6. Raising capital and capital structure		CF			
7. Mergers and acquisitions (restructurings)			CF		
8. Dividend policy		CF			
9. International finance	IF			CF	
10. Financial investments	INV				
C. Decision Analysis and Risk Management (25%)					
1. Cost-volume-profit analysis	MA		CF		
2. Marginal analysis (relevant costing)		MIE	CF		
3. Tax implications for operational decisions			CF		
4. Pricing			MIE		
5. Risk assessment (operational, hazard, financial, and strategic)		INV	CF		
6. Enterprise risk management (ERM)					X
D. Investment Decisions (20%)					
1. Capital budgeting tools (NPV, IRR)	CF	MA			
2. Discounted cash flow concepts	CF	MA			
3. Nondiscounted analysis (e.g., payback)	CF		MA		
4. Ranking investment projects	CF		MA		
5. Tax implications for investment decisions			CF, INV	MA	
6. Capital investment risk analysis	CF				
7. Valuation methods		CF, INV		FA	
8. Risk analysis in capital budgeting	CF				
E. Professional Ethics (5%)					
1. Ethical considerations for the organization	BE	INV		CF	

Table 4: Course Recommendations for Undergraduate Accounting Majors

	Course	Typical Class Year
AIS	Accounting Information Systems	JR
AUD	Auditing	SR
BE	Business Ethics	JR
CA	Cost Accounting/Advanced Managerial	JR/SR
CF	Corporate Finance (Intermediate)	JR
FA	Financial Accounting	SOPH
INT	Intermediate Accounting	JR
IF	International Finance	JR/SR
INV	Investments	JR/SR
MA	Managerial Accounting	SOPH
MIE	Microeconomics	SOPH
OP	Operations Management	JR
TAX	Federal Income Taxation	JR/SR

study starting in their junior year.

Undergraduate Finance Program

To what extent does the typical undergraduate finance curriculum prepare students for the CMA exam? A review of the content of the required courses included

in the typical finance undergraduate curriculum (see Table 3) shows that the curriculum is likely to include solid coverage of the content of Part 2 of the exam, but it is not as strong on Part 1. Appropriate electives can address most of the deficiencies. These elective courses include (if not already included as required courses)

Table 5: Suggested Program of Study: Starting in Junior Year Undergraduate Accounting Majors

Fall Semester	Spring Semester	Summer Term
<i>Junior Year</i>		
Intermediate Accounting I Corporate Finance Management/Organization Behavior Accounting Information Systems Marketing	Intermediate Accounting II International Finance (Elect) Investments (Elect) Business Ethics Operations Management	CMA Exam Part 2 (May/June)
<i>Senior Year</i>		
Cost Accounting Auditing Business Capstone Free Electives (2)	Business Law Accounting Capstone Federal Income Taxation Free Electives (2)	*If a candidate is not able to prepare for Part 1 of the CMA exam in the Fall of the senior year, the Summer term is a backup. (May/June)
CMA Exam Part 1* (January)		

Table 6: Course Recommendations for Undergraduate Finance Majors

	Course	Typical Class Year
AIS	Accounting Information Systems	JR
AUD	Auditing (desirable)	JR/SR
BE	Business Ethics	JR
CA	Cost Accounting (desirable)/Advanced Managerial	JR
CF	Corporate Finance	JR
FA	Financial Accounting	SOPH
INT	Intermediate Accounting	JR
IF	International Finance	JR/SR
INV	Investments	JR/SR
MA	Managerial Accounting	SOPH
MIE	Microeconomics	SOPH
OP	Operations Management (desirable)	JR

Intermediate Accounting and Accounting Information Systems. To the extent there is room for an additional elective, a course in Cost Accounting/Advanced Managerial Accounting is also desirable.

Based on our evaluation and the typical content of undergraduate courses, a program containing the coursework shown in Table 6 would prepare undergraduate finance majors for the CMA exam.

The suggested program of study for finance majors should parallel the program for accounting majors, with the accounting courses filling elective slots and international finance and investments counting as required courses for the typical finance major.

GRADUATE PROGRAMS

Curricular Content

In a manner similar to our analysis of undergraduate programs, we examined the courses contained in typical MAcc and MBA programs. The results are shown in Table 7, which lists the “typical” content of these programs. Generic descriptions of the courses listed in Table 7 are included in Appendix 2. Topics covered within a course that are tested on the CMA exam are listed in bold type in the appendix.

Program content can vary widely, particularly at the graduate level, but we have provided what we believe

are the courses most commonly included in these programs. We also note that a great deal of variance in course titles exists.

Curricular Mapping

To what extent do the courses included in these programs cover the content of the new CMA exam? To answer this question, we again look at the major content areas tested on the CMA exam and where and to what extent they are covered in the typical structure of MBA and graduate accounting programs. For these programs, the result of this analysis is the curriculum mappings presented in Tables 8 and 9.

These tables list the areas covered by the CMA exam and indicate the extent to which each program covers those topics. As in the tables for the undergraduate programs, the degrees of coverage range as follows: *heavy, moderate, limited, slight, or no coverage* of the content areas tested on the new CMA exam.

A course legend is provided in Table 7 for the course abbreviations used. For these two graduate programs, courses are listed as required, elective, or prerequisite (foundational) to their respective degree programs.

Master of Accountancy Program

Master of Accountancy programs tend to be more

Table 7: Typical Graduate Program Curriculum

(a) Master of Accountancy Program

AIS	Accounting Information Systems	PRE
AUD	Auditing	PRE
BLE	Business/Legal/Ethics/Corp. Governance	REQ or ELEC
CA	Cost Accounting/Advanced Managerial	REQ or ELEC
CF	Corporate Finance	REQ or ELEC
FA	Introductory Financial Accounting	PRE
FSA	Financial Statement Analysis	REQ or ELEC
GOV	Governmental and Nonprofit Accounting	ELEC
INV	Investments	ELEC
INT	Intermediate Accounting	PRE
ITL	International Accounting	ELEC
MA	Management Accounting	PRE
MCS	Management Control Systems	REQ or ELEC
QA	Quantitative Analysis/Statistics	PRE or REQ or ELEC
SEC	Securities, Markets, and Financial Institutions	REQ or ELEC
TAX	Federal Income Taxation	PRE

(b) MBA Program

AM	Accounting for Managers	REQ
BLE	Behavioral/Legal/Ethics/Corp. Governance	REQ
CF	Corporate Finance/Financial Management	REQ
ECO	Economic Analysis (Micro/Macro)	REQ
FA	Introductory Financial Accounting	PRE
IB	International Business	REQ
IT	Managing Information Technology	REQ
INV	Investments	ELEC
MA	Managerial Accounting	PRE
MKT	Marketing Management	REQ
OB	Organizational Behavior	REQ
OP	Operations Management	REQ
QA	Quantitative Analysis/Statistics	REQ
SM	Strategic Management	REQ

Key: PRE=prerequisite/foundational, REQ=required, ELEC=elective

Table 8: CMA Content Coverage in a Typical Master of Accountancy Program

(a) Part 1—Financial Planning, Performance and Control

	Heavy	Moderate	Limited	Slight	None
A. Planning, Budgeting, and Forecasting (30%)					
1. Budgeting concepts and planning processes	CA	MA		CF	
2. Types of budgets (activity-based budgeting, flexible budgeting, project budgeting)	CA	MA		CF	
3. Annual profit plans		CA, MA	CF		
4. Forecasting (including use of regression analysis and learning curves)		CF	MA		
B. Performance Management (25%)					
1. Flexible budgets, control and performance evaluation factors	MCS	CA, MA		CF	
2. Variance analysis and standard costs	MCS, CA		MA		
3. Responsibility accounting and segment analysis (e.g., cost centers, revenue centers)	MCS	CA	MA		
4. Balanced scorecard	MCS	MA	CA		
C. Cost Management (25%)					
1. Cost concepts and terminology	CA, MA, MCS				
2. Costing systems (job order, process costing)	CA	MA, MCS			
3. Overhead allocation (e.g., ABC costing)	CA, MCS	MA			
4. Business process performance and operational efficiency topics (e.g., JIT, ABM, theory of constraints)	MCS	MA, OP	CA		
D. Internal Controls (15%)					
1. Risk assessment and internal control environment	AIS, AUD				
2. Internal auditing and audit types	AUD		SEC	AIS, FSA	
3. Accounting information system controls	AIS	AUD			
E. Professional Ethics (5%)					
1. Ethical considerations for management accounting professionals		CA, MA	AUD, BLE		

Table 8: CMA Content Coverage in a Typical Master of Accountancy Program

(b) Part 2—Financial Decision Making

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (25%)					
1. Financial statement purposes and limitations	FA	FIN	CF		
2. Financial statement interpretation (including ratio and comparative analysis)	FIN, CF	FA	INT	AUD	
3. Fair value acct., market value vs. book value		INT	FIN	FA, CF	
4. IFRS vs. U.S. GAAP and other international issues	ITL	INT		CF, FA	
5. Cash flow statement preparation and analysis	INT	CF	FIN	FA	
6. Earnings quality		FIN		CF, FA, INT	
B. Corporate Finance (25%)					
1. Risk (types and measures)		CF	AUD	MA	
2. Portfolio management	INV	SEC	CF		
3. Financial instruments (including options and futures)	INV	SEC	CF	INT	
4. Cost of capital	CF	SEC		MA	
5. Working capital management	CF			FIN, FA	
6. Raising capital and capital structure	SEC	CF	FIN, INT		
7. Mergers and acquisitions (restructurings)		SEC	CF		
8. Dividend policy		CF	FIN	INT	
9. International finance		SEC, ITL		CF	
10. Financial investments	INV				
C. Decision Analysis and Risk Management (25%)					
1. Cost-volume-profit analysis	MA	CA, MA	CF, MCS		
2. Marginal analysis (relevant costing)		CA, MA	CF, MCS		
3. Tax implications for operational decisions			CF, FIN	TAX	
4. Pricing			CA, MA		
5. Risk assessment (operational, hazard, financial, and strategic)		AUD, INV	CF, MCS		
6. Enterprise risk management (ERM)		AIS	AUD, MCS		
D. Investment Decisions (20%)					
1. Capital budgeting tools (NPV, IRR)	CF	MA	MCS		
2. Discounted cash flow concepts	CF	MA	INT		
3. Nondiscounted analysis (e.g., payback)		CF	MA		
4. Ranking investment projects	CF		MA		
5. Tax implications for investment decisions			CF, INV	FIN, MA	
6. Capital investment risk analysis	CF			FIN, SEC	
7. Valuation methods		CF, INV	INT	FA, FIN	
8. Risk analysis in capital budgeting	CF	INV			
E. Professional Ethics (5%)					
1. Ethical considerations for the organization	BE	AUD		CF, SEC	

Table 9: CMA Content Coverage in a Typical MBA Program

(a) Part 1—Financial Planning, Performance and Control

	Heavy	Moderate	Limited	Slight	None
A. Planning, Budgeting, and Forecasting (30%)					
1. Budgeting concepts and planning processes		MA		CF	
2. Types of budgets (activity-based budgeting, flexible budgeting, project budgeting)		MA		CF	
3. Annual profit plans		MA	CF		
4. Forecasting (including use of regression analysis and learning curves)	QA	CF	MA		
B. Performance Management (25%)					
1. Flexible budgets, control and performance evaluation factors		MA, OP	ECO	CF	
2. Variance analysis and standard costs			MA		
3. Responsibility accounting and segment analysis (e.g., cost centers, revenue centers)			MA		
4. Balanced scorecard		MA		OP	
C. Cost Management (25%)					
1. Cost concepts and terminology	MA		ECO		
2. Costing systems (job order, process costing)		MA			
3. Overhead allocation (e.g., ABC costing)		MA			
4. Business process performance and operational efficiency topics (e.g., JIT, ABM, theory of constraints)		MA, OP			
D. Internal Controls (15%)					
1. Risk assessment and internal control environment				AM	
2. Internal auditing and audit types				AM	
3. Accounting information system controls				AM	
E. Professional Ethics (5%)					
1. Ethical considerations for management accounting professionals		MA	AM, BLE	CF	

diverse than the other programs considered, and putting together a program that prepares students in MAcc programs for the CMA exam can be more challenging. Courses in Cost Accounting, Accounting Information Systems, and Corporate Finance are key to adequate preparation. A course in Management Control Systems is also desirable.

Based on our evaluation and the typical content of graduate courses, a program where the coursework shown in Table 10 is selected would prepare MAcc program students for the CMA exam.

Master of Business Administration Program

MBA programs tend to be more homogenous than

Table 9: CMA Content Coverage in a Typical MBA Program

(b) Part 2—Financial Decision Making

	Heavy	Moderate	Limited	Slight	None
A. Financial Statement Analysis (25%)					
1. Financial statement purposes and limitations	FA	AM	CF		
2. Financial statement interpretation (including ratio and comparative analysis)	CF	AM, FA			
3. Fair value acct., market value vs. book value			AM	CF, FA	
4. IFRS vs. U.S. GAAP and other international issues			AM	CF, FA	
5. Cash flow statement preparation and analysis		AM, CF		FA	
6. Earnings quality		AM		CF, FA	
B. Corporate Finance (25%)					
1. Risk (types and measures)		CF		MA	
2. Portfolio management	INV		CF		
3. Financial instruments (including options and futures)	INV	SEC	CF		
4. Cost of capital	CF			MA	
5. Working capital management	CF			FA	
6. Raising capital and capital structure		CF			
7. Mergers and acquisitions (restructurings)		STR	CF		
8. Dividend policy		CF		AM	
9. International finance		SEC		CF	
10. Financial investments	INV				
C. Decision Analysis and Risk Management (25%)					
1. Cost-volume-profit analysis		AM	CF		
2. Marginal analysis (relevant costing)		MA	AM, CF, ECO		
3. Tax implications for operational decisions			AM, CF, ECO		
4. Pricing		AM			
5. Risk assessment (operational, hazard, financial, and strategic)		INV, SM	AM, CF		
6. Enterprise risk management (ERM)				AM	
D. Investment Decisions (20%)					
1. Capital budgeting tools (NPV, IRR)	CF	MA			
2. Discounted cash flow concepts	CF	MA			
3. Nondiscounted analysis (e.g., payback)		CF	MA		
4. Ranking investment projects	CF		MA		
5. Tax implications for investment decisions			CF, INV	MA	
6. Capital investment risk analysis	CF				
7. Valuation methods		CF		FA	
8. Risk analysis in capital budgeting	CF	INV			
E. Professional Ethics (5%)					
1. Ethical considerations for the organization	BLE	SM	OB	AM, CF	

Table 10: Course Recommendations for MAcc Students

	Prerequisites/Foundational
AIS	Accounting Information Systems
AUD	Auditing
FA	Financial Accounting
INT	Intermediate Accounting
MA	Management Accounting
QA	Quantitative Analysis Statistics
TAX	Federal Income Taxation
	MAcc Courses
BLE	Business/Legal/Ethics/Corp. Governance
CA	Cost Accounting/Advanced Managerial
CF	Corporate Finance
FSA	Financial Statement Analysis
INV	Investments
MCS	Management Control Systems
QA	Quantitative Analysis/Statistics
SEC	Securities, Markets, and Financial Institutions

Table 11: Course Recommendations for MBA Students

	Prerequisites/Foundational
FA	Financial Accounting
MA	Managerial Accounting
MIE	Microeconomics
QA	Quantitative Analysis/Statistics
	MBA Courses
AIS	Accounting Information Systems
AM	Accounting for Managers
BLE	Behavioral/Legal/Ethics/Corp. Governance
CF	Corporate Finance/Financial Management
ECO	Economic Analysis (Micro/Macro)
IB	International Business
IT	Managing Information Technology
INV	Investments
MKT	Marketing Management (optional, typically required)
MCS	Management Control Systems (desirable)
OB	Organizational Behavior
OP	Operations Management
QA	Quantitative Analysis/ Statistics
SM	Strategic Management

MBA programs, and they generally cover a body of knowledge that is very compatible with the CMA exam. As noted in Table 9, most of the CMA topics are covered at least to a moderate extent in the typical MBA program. Again, selection of appropriate electives is important for adequate exam preparation. Courses in Management Control Systems, Accounting Information Systems, and Investments are important components of these programs, and a course in Auditing is also desirable.

Based on our evaluation and the typical content of graduate courses, a program where the coursework shown in Table 11 is selected would prepare MBA students for the CMA exam.

MAKING THE RIGHT SELECTION

The new CMA exam covers the topics necessary for accounting and financial professionals working in organizations to succeed in their careers. Based on the information presented in this article, it can be seen that many accounting and finance students—either through their regular curriculum or through a judicious selection of electives—can take programs of study that prepare them to sit for and pass the CMA exam. ■

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Appendix 1: Typical Undergraduate Course Descriptions

Course	Course Description	Typical Course Content (Topics covered on CMA exam listed in bold)
ADV—Advanced Accounting	Advanced topics in financial reporting and accounting for international operations, multi-corporate business entities, not-for-profit and other government organizations.	<ul style="list-style-type: none"> ● Financial statement purpose, interpretation, and limitation ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Mergers and acquisitions ● Not-for-profit and governmental accounting
AIS—Accounting Information Systems	Provides a thorough understanding of the information systems that support the accounting function.	<ul style="list-style-type: none"> ● Internal control risk assessment ● AIS controls ● COBIT ● COSO Internal Control Framework ● Enterprise risk management ● IT governance ● Business processes ● Systems development life cycle
AUD—Auditing	An in-depth study of audit, attestation, and other assurance services provided by independent auditors. The focus is on publicly traded companies, financial statement audits, and audits of internal controls over financial reporting.	<ul style="list-style-type: none"> ● Risk assessment (the entity, its environment, and internal control) ● Materiality and risk (types and measures) ● Types of audits and reports ● AIS controls ● COSO Internal Control Framework ● Evidence type and quality ● Audit, attestation, and quality control standards ● Professional ethics and legal liability ● Management assertions and audit evidence

<p>BE—Business Ethics</p>	<p>Introduces ethics-related aspects to the business decision-making process. Emphasizes the consistent recognition and application of ethical principles throughout the corporate decision-making process.</p>	<ul style="list-style-type: none"> ● Management accountant professional ethics ● Organizational ethics ● Decision-making strategy
<p>CA—Cost/Advanced Managerial Accounting</p>	<p>An intermediate course covering the managerial use of accounting data to assist managers in their plans and decisions regarding resource allocation, organizational control, and performance evaluation.</p>	<ul style="list-style-type: none"> ● Budgeting and planning (master budget) ● Control and performance evaluation ● Cost concepts and systems ● Overhead allocation ● Activity-based costing ● Standard costs and variance analysis ● Responsibility accounting ● Balanced scorecard ● Cost-volume-profit analysis ● Marginal analysis (e.g., relevant costs) ● Make vs. buy decisions ● Pricing decisions and cost management
<p>CF—Corporate Finance</p>	<p>Introduces the theory, methods, and concerns of corporate finance.</p>	<ul style="list-style-type: none"> ● Risk and return ● Portfolio management ● Financial instruments ● Cost of capital ● Capital structuring ● Raising capital and capital budgeting ● Discounted cash flow concepts (NPV, IRR) ● Nondiscounted analysis ● Ranking investment projects

<p>FA—Financial Accounting</p>	<p>A fundamentals course introducing the basic financial accounting principles and concepts used to prepare financial statements for a business enterprise.</p>	<ul style="list-style-type: none"> ● Types of business organization ● Financial statement type, purpose, preparation, and analysis ● The accounting cycle ● Analyzing and recording business transactions ● Revenue, expense, asset, and liability concepts ● Merchandising operations and inventory ● Historical cost vs. fair value accounting ● Working capital concepts ● Earnings quality ● Cash flow statement preparation and analysis
<p>INT—Intermediate Accounting</p>	<p>An intermediate financial accounting course with in-depth focus on asset, liability, and owners' equity measurement; revenue determination, timing, and recognition; and financial statement preparation, presentation, and analysis.</p>	<ul style="list-style-type: none"> ● Financial statement purpose, preparation, and analysis ● Financial statement limitations ● Asset, liability, and equity account analysis ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Ratio analysis ● Earnings quality ● Valuation methods ● Financial instruments ● Dividend policy ● Pensions and post-retirement benefits ● Capital leases ● Revenue recognition and measurement

<p>INV—Investments</p>	<p>A survey course that analyzes, measures, and values stock, bond, and other investment products.</p>	<ul style="list-style-type: none"> ● Market participation ● Efficient markets ● Financial instruments: fixed income and equity ● Financial markets: fixed income and equity ● Derivatives ● Futures and options ● Mutual funds ● Financial investment valuation ● Portfolio management ● International investments and markets ● Risk analysis in capital budgeting ● Risk assessment ● Valuation methods
<p>MA—Managerial Accounting</p>	<p>A fundamentals course designed to develop managerial decision-making skills to plan, control, and measure production costs.</p>	<ul style="list-style-type: none"> ● Cost concepts, terminology, and measurement ● Budgeting, planning, and controlling costs ● Activity-based and other cost management concepts ● Performance evaluation and balanced scorecard ● Cost allocation ● Standard costs and variance analysis ● Cost-volume-profit analysis ● Marginal analysis (relevant costing) ● Discounted cash flow concepts ● Capital budget tools (NPV, IRR) ● Nondiscounted analysis ● Ranking investment projects

<p>MIE—Microeconomics</p>	<p>An introductory course providing a thorough understanding of economic principles for individual decision makers, both consumers and producers, within the larger economic system.</p>	<ul style="list-style-type: none"> ● Nature and functions of product markets ● Marginal analysis (relevant costs) ● Pricing ● Government's role in promoting efficiency and equity in the economy
<p>OP—Operations Management</p>	<p>An intermediate management course that examines problems encountered in planning, operating, and controlling the production of goods and services.</p>	<ul style="list-style-type: none"> ● Business process control and performance evaluation ● Production systems ● Competition, strategy, and productiveness ● Forecasting ● Product and service design ● Strategic capacity ● Quality control ● Capacity and facilities management ● Inventory management ● JIT inventory ● Six Sigma ● Resource allocation ● Theory of constraints ● Logistics ● Supply chain management ● Scheduling ● Project management ● Balanced scorecard ● Operational efficiencies
<p>TAX—Federal Income Taxation</p>	<p>Introduces and develops a basic understanding of federal income tax law and its effects on income, tax planning, and other business decisions.</p>	<ul style="list-style-type: none"> ● Tax implications for operational decisions ● Tax implications for investment decisions ● Tax implications for individual and entity type (C-Corp., S-Corp., LLC, etc.) ● Measurement of income and expense ● IRS tax code

Appendix 2: Typical Graduate Course Descriptions

Course	Course Description	Typical Course Content (Topics Covered on CMA Exam listed in Bold)
AIS—Accounting Information Systems	Undergrad prerequisite (see undergraduate listing).	<ul style="list-style-type: none"> ● Internal control risk assessment ● AIS controls ● COBIT ● Enterprise risk management ● IT governance ● Business processes ● Systems development life cycle
AM—Accounting for Managers	Introduces accounting concepts and accounting system operating characteristics. Course focus is on the use of financial and managerial accounting information for decision-making purposes.	<ul style="list-style-type: none"> ● Financial statement analysis and interpretation ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Earnings quality ● Cost-volume-profit analysis ● Marginal analysis ● Tax implications for operational decisions ● Pricing ● Ethical considerations for the organization ● Risk assessment ● Internal control environment ● Internal auditing and types of audits

<p>AUD—Auditing</p>	<p>Undergrad prerequisite (see undergrad listing).</p>	<ul style="list-style-type: none"> ● Risk assessment (the entity, its environment, and internal control) ● Materiality and risk (types and measures) ● Types of audits and reports ● AIS controls ● Evidence type and quality ● Audit, attestation, and quality control standards ● Professional ethics and legal liability ● Management assertions and audit evidence
<p>BLE—Business/Legal/Ethics/Corp. Governance</p>	<p>Examines and evaluates the legal environment and ethical challenges facing management in order to enhance corporate accountability, foster an ethical work environment, ensure legal compliance, and provide effective leadership within the organization.</p>	<ul style="list-style-type: none"> ● Ethical considerations for management, the organization, and accounting professionals ● Ethical theory, principles, and application ● Corporate ethics consistency ● Corporate governance
<p>CA—Cost/Advanced Managerial Accounting</p>	<p>Undergrad prerequisite (see undergrad listing) or elective.</p>	<ul style="list-style-type: none"> ● Budgeting and planning (master budget) ● Control and performance evaluation ● Cost concepts and systems ● Overhead allocation ● Standard costs and variance analysis ● Responsibility accounting ● Balanced scorecard ● Cost-volume-profit analysis ● Marginal analysis (e.g., relevant costs) ● Make vs. buy decisions ● Pricing ● Business process performance

<p>CF—Corporate Finance/Financial Management</p>	<p>Introduces the theory, methods, and applications of corporate finance. Emphasis is placed on the development of problem-solving skills for the business manager.</p>	<ul style="list-style-type: none"> ● Capital budgeting concepts: planning process ● Forecasting ● Flexible budgets, control, and performance evaluation factors ● Financial statement purposes, interpretations, and limitations ● Fair value accounting ● Earnings quality ● Risk (types, measures, assessment, and analysis) ● Portfolio management ● Financial instruments ● Cost of capital ● Working capital management ● Raising capital and capital structure ● Mergers and acquisitions ● Dividend policy ● International finance ● Cost-volume-profit analysis ● Marginal analysis ● Tax implications for operational and investment decisions
<p>ECO—Economic Analysis (Macro/Micro)</p>	<p>Introduces the economic decisions firms must make regularly. Emphasis is on market structure, industrial performance, firm strategic interaction, and individual market behavior.</p>	<ul style="list-style-type: none"> ● Individual market behavior ● Producer/consumer analysis ● Cost analysis ● Market demand ● Individual demand ● Pricing strategy ● Market power ● Government regulation

<p>FA—Financial Accounting</p>	<p>Undergrad prerequisite (see undergrad listing).</p>	<ul style="list-style-type: none"> ● Types of business organization ● Financial statement type, purpose, preparation, and analysis ● The accounting cycle ● Analyzing and recording business transactions ● Revenue, expense, asset, and liability concepts ● Merchandising operations and inventory ● Historical cost vs. fair value accounting ● Working capital concepts ● Earnings quality ● Cash flow statement preparation and analysis
<p>FSA—Financial Statement Analysis</p>	<p>An intermediate course using financial statements to analyze the quality of reported earnings and predict a firm's value.</p>	<ul style="list-style-type: none"> ● Internal auditing and types of audits ● Financial statement purposes and limitations ● Financial statement interpretation ● Fair value accounting ● Cash flow analysis ● Earnings quality ● Dividend policy ● Tax implications for operational and investment decisions ● Capital investment risk analysis ● Valuation methods

IA—Intermediate Accounting	Undergrad prerequisite (see undergrad listing).	<ul style="list-style-type: none"> ● Financial statement purpose, preparation, and analysis ● Financial statement limitations ● Asset, liability, and equity account analysis ● Fair value accounting ● IFRS vs. U.S. GAAP and other international issues ● Cash flow statement preparation and analysis ● Earnings quality ● Valuation methods ● Financial instruments ● Dividend policy ● Pensions and post-retirement benefits ● Capital leases ● Revenue recognition and measurement
IB—International Business	Emphasizes economic analysis of the forces driving international business. It equips managers with a comprehensive framework to formulate objectives and strategies for global operations.	<ul style="list-style-type: none"> ● Competitive advantages ● Competitive strategies ● Alternative modes of market entry ● Intermediary import and export ● Foreign suppliers and distributors ● Foreign direct investment (FDI)
IF—International Finance	Analyzes the international financial environment with an emphasis on foreign exchange markets and financial management.	<ul style="list-style-type: none"> ● Foreign exchange risk: measurement and management ● Foreign exchange investment, hedging, speculation, and arbitrage ● Currency futures, forwards, and options ● Optimal short- and long-term borrowing and investment decision making ● Multinational corporate cost of capital and capital budgeting ● Country debt ● Exchange rate fluctuation ● Forecasting foreign exchange rates

<p>ITL—International Accounting</p>	<p>Provides a broad-based understanding of the international dimensions of accounting standards, transactions, and financial statements.</p>	<ul style="list-style-type: none"> ● IFRS vs. U.S. GAAP and other international issues ● International corporate governance ● International taxation and transfer pricing ● Foreign currency transactions, hedging, and risk ● Foreign currency financial statement translation ● Strategic accounting issues of multinational companies
<p>INV—Investments</p>	<p>An in-depth course on portfolio theory risk analysis, strategy, and market application for equities, fixed-income securities, options, and other investment products.</p>	<ul style="list-style-type: none"> ● Market participation ● Efficient markets ● Financial instruments: fixed income and equity ● Financial markets: fixed income and equity ● Derivatives ● Futures and options ● Mutual funds ● Financial investment valuation ● Portfolio management ● International investments and markets ● Risk analysis in capital budgeting ● Risk assessment ● Valuation methods
<p>IT—Managing Information Technology</p>	<p>Introduces information systems fundamentals, tools, and techniques necessary to operate effectively in a computerized business environment.</p>	<ul style="list-style-type: none"> ● IS business systems ● IS concepts ● Strategy ● System and application software ● Database management ● Data resource management ● IS development ● Security management ● Enterprise business systems

<p>MA—Managerial Accounting</p>	<p>Undergrad prerequisite (see undergrad listing).</p>	<ul style="list-style-type: none"> ● Cost concepts, terminology, and measurement ● Budgeting, planning, and controlling costs ● Activity-based and other cost management concepts ● Performance evaluation and balanced scorecard ● Cost allocation ● Standard costs and variance analysis ● Cost-volume-profit analysis ● Marginal analysis (relevant costing) ● Discounted cash flow concepts ● Capital budget tools (NPV, IRR) ● Nondiscounted analysis ● Ranking investment projects
<p>MCS—Management Control Systems</p>	<p>An advanced course focusing on management design, implementation, strategy, and use of planning and control systems.</p>	<ul style="list-style-type: none"> ● Control environment ● Organizational strategy and behavior ● Responsibility centers: revenue, expense, and profit ● Transfer pricing ● Measuring and controlling assets and costs ● Strategic planning ● Budgets ● Performance measurement ● Balanced scorecard ● Management compensation ● Corporate governance ● Ethical models
<p>MKT—Marketing Management</p>	<p>An intermediate course examining the management of marketing operations and systems.</p>	<ul style="list-style-type: none"> ● Market opportunities ● Market strategy and planning ● Market mix, segmentation, targeting, and position ● Buyer behavior ● Customer resource management ● Market channels and supply chain

<p>OB—Organizational Behavior</p>	<p>Provides an overview of issues, problems, and theories of human behavior at work.</p>	<ul style="list-style-type: none"> ● Organizational culture ● Leadership ● Motivation and participation ● Teamwork ● Career issues ● Job enrichment ● Work design
<p>OP—Operations Management</p>	<p>Introduces the efficient production of goods and services by analyzing processes, ensuring quality, creating value, and managing the flow of information and products along the supply chain.</p>	<ul style="list-style-type: none"> ● Business process control and performance evaluation ● Production systems ● Competition, strategy, and productiveness ● Forecasting ● Product and service design ● Strategic capacity ● Quality control ● Capacity and facilities management ● Inventory management ● JIT Inventory ● Six Sigma ● Resource allocation ● Theory of constraints ● Logistics ● Supply chain management ● Scheduling ● Project management ● Balanced scorecard ● Operational efficiencies
<p>QA—Quantitative Analysis/Statistics</p>	<p>Introduces quantitative methods and their business applications.</p>	<ul style="list-style-type: none"> ● Displaying and exploring data ● Probability analysis and concepts ● Forecasting ● Statistical sampling methods ● Linear and nonlinear programming ● Analysis of variance

<p>SEC—Securities, Markets, and Financial Institutions</p>	<p>Introduces the structure and functions of money and capital markets, saving investment processes, financial intermediaries, interest rates, and the supply and demand for loanable funds.</p>	<ul style="list-style-type: none"> ● Financial markets ● Financial institutions ● Monetary policy ● Financial instruments ● Money, stock, bond, and mortgage markets ● Foreign exchange and the international financial system ● Interest rates and valuation ● Risk management
<p>SM—Strategic Management</p>	<p>Integrates prior business courses and focuses on corporate and divisional policy, organizational change, competition, and strategic decision making.</p>	<ul style="list-style-type: none"> ● Crafting and executing strategy ● Evaluating a firm’s external environment, resources, and competitive position ● Organizational objectives and structure ● Diversification ● Competitive strategy ● Foreign market strategy ● Ethical strategies ● Corporate culture and leadership ● Vertical integration ● Strategic alliances ● Mergers and acquisitions
<p>TAX—Income Tax Accounting</p>	<p>Undergrad prerequisite (see undergrad listing).</p>	<ul style="list-style-type: none"> ● Tax implications for operational decisions ● Tax implications for investment decisions ● Tax implications for individual and entity type (C-Corp., S-Corp., LLC, etc.) ● Measurement of income and expense ● IRS tax code